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ABSTRACT

The literature on the treatment of traumatic stress is examined across three distinct age groups: adults, adolescents, and children. Various psychotherapies including group and individual models, pharmacological interventions, community support resources and integrated models are explored. Comorbidity and other issues are considered. Analysis of the treatment literature reveals some clear implications for the combining and sequencing of specific treatments. This diverse set of therapy programs in concert can more effectively attenuate the range of traumatic symptoms. Drawing from data in each age group, more comprehensive treatment programs are recommended. The literature indicates that complex assessment batteries and multimodal, multifocus treatment programs are necessary for amelioration of the majority of traumatic stress expressions. These treatment packages are applied interactively with biological, psychological, familial, and social factors. Recommendations are made for the design of both treatment programs and future research studies. Limitations of current research and treatment applications are discussed. (Author/EMK)

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SUCCESSFUL TREATMENT OF TRAUMATIC STRESS ACROSS THE LIFE-SPAN: A REVIEW OF THE CURRENT LITERATURE

A Doctoral Research Paper
Presented to
the Faculty of the Rosemead School of Psychology
Biola University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Psychology

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by
David M. Knight
May, 1998

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ABSTRACT

SUCCESSFUL TREATMENT OF TRAUMATIC STRESS ACROSS THE LIFE-SPAN: A REVIEW OF THE CURRENT LITERATURE

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David M. Knight

This review critically examines the literature on the treatment of traumatic stress across three distinct age groups: adults, adolescents, and children. Analysis of the treatment literature reveals some clear implications for the combining and sequencing of specific treatments. This diverse set of therapy programs in concert can more effectively attenuate the range of traumatic symptoms. Drawing from data in each age group, more comprehensive treatment programs are recommended. The literature indicates that complex assessment batteries and multi-modal, multi-focus treatment programs are necessary for amelioration of the majority of traumatic stress expressions. These treatment packages are applied interactively with biological, psychological, familial and social factors. Recommendations are made for the design of both treatment programs and future research studies. Limitations of current research and treatment applications are discussed.

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SUCCESSFUL TREATMENT OF TRAUMATIC STRESS ACROSS THE LIFE-SPAN: A REVIEW OF THE CURRENT LITERATURE

Introduction

Freud (1911/1959) noted that to function in a healthy way, people need to be able to mentally entertain a range of options, without resorting to action. He called this capacity "thought as experimental action." Traumatized individuals seem to lose this capacity and utilize their emotions as guides for action (van der Kolk & Ducey, 1984). While emotion can lead to effective action when it is channeled through reason, traumatized individuals seem to use this energy to avoid thinking and planning (van der Kolk et al, 1995). Horrific experiences that destroy a person's sense of predictability and invulnerability can dramatically impact the way one deals with one's internal and external world. The syndrome of Post Traumatic Stress Disorder (PTSD), one expression of traumatic stress reaction, can follow such widely different stressors as war trauma, physical and sexual assaults, accidents and other natural and man-made disasters.

Several studies have indicated that PTSD is among one of the most common psychiatric disorders. The National Vietnam Veterans Readjustment Study noted that 20 years after the war, 15.2% of Vietnam theater veterans continued to suffer from PTSD. Ninety-eight percent of Vietnam theater veterans with PTSD had a history of some other disorder. (Kulka, Schlenger, & Fairbank, 1990). Other studies note PTSD prevalence to be any where from 1.3%

(Heltzer, Robins, & McEvoy, 1987) to 9% (Breslau, Davis, & Andreski, 1991) in the general population and minimally 15% in psychiatric inpatients (Saxe et al., 1993).

Lack of a predictable and controllable environment seem to be key issues for the victims of trauma who develop PTSD symptoms. (van der Kolk, van der Hart, & Burbridge, 1995). Janet (1904) and Kardiner (1941) began the understanding of PTSD as a combination of intrusive and numbing symptoms that the patient cannot integrate into an autobiographical memory (van der Kolk & Ducey, 1984). These memories, left unintegrated, are re-lived in thoughts, feelings and images. Once these individuals become dominated by intrusions of the trauma, they organize their lives around avoiding them . This avoidance may be physical, such as avoiding tangible reminders of the event and self-medicating with drugs and alcohol. It could also be psychological as well, through dissociation (van der Kolk & Ducey, 1984).

The treatment of PTSD and other similar reactions to trauma began some 120 years ago and has remained extraordinarily consistent over the years (van der Kolk et al, 1995). These treatments attempt to attack the symptoms of hyper-arousal, dissociation, and recurrent experience of the initial trauma, both individually and in combination with multiple human systems (i.e., mental, emotional, biological and relational contexts). However, other factors such as co-morbidity, disability compensation and, in some cases, a return to the trauma inducing situation, all complicate, delay, and sometimes permanently impede recovery.

The controlled study of PTSD has been negligible until recent years. After its inclusion in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition ([DSM-III-R], American Psychiatric Association, 1980), few controlled studies were initiated for almost a decade. In fact, thirteen years after the official identification of PTSD as a discrete symptom cluster, Solomon, Gerrity, & Muff (1992) reported that, excluding pharmacological studies, only six controlled studies had been published. As recently as 1996, Chambless et al., in a report to the APA Task Force on the promotion and dissemination of psychological procedures, reported that no methods were presently considered well-established treatments for PTSD. Sixteen years after its inception, only two methods, exposure (flooding) and stress inoculation therapy were cautiously recommended as being "probably efficacious."

Marmar, Foy, & Kagan (1993), and Marmar, Weiss, & Pynoos (1995), have suggested an expansion of PTSD into five identifiable syndromes: normal stress response, acute catastrophic stress response, uncomplicated PTSD, PTSD comorbid with other disorders, and post-traumatic personality. Each of these syndromes required a distinct treatment approach. While these categories are not empirically based, they are included to assist the reader in understanding the breadth and combinations of PTSD that are presented to the clinician for treatment.

Normal stress response occurs when healthy adults have been exposed to a single discrete trauma in adulthood and, as a result, experience intense intrusive recollections, numbing, denial, feelings of unreality, and hyperarousal. Armstrong, O'Callahan and Marmar (1991) concluded their report of the Red Cross disaster personnel debriefing by saying that individuals seem to achieve complete recovery following the use of the Critical Incident Stress Debriefing (CISD) protocol.

Acute catastrophic stress reactions are characterized by: severe insomnia, cognitive disorganization, tics and other movement disorders, paranoid reactions, panic reactions, disorientation, dissociation and the incapacity to manage even basic self-care and interpersonal functions (Marmar, 1991).

Treatment potentially includes removal from the scene of the trauma, immediate support by family or friends, use of anxiolytic medication for immediate relief of anxiety and insomnia, and supportive, yet aggressive, brief dynamic therapy in the context of crisis intervention.

Uncomplicated PTSD may respond to group, psychodynamic, cognitive-behavioral, or pharmacological approaches, singularly or in combination. In reviewing Marmar's contribution, Friedman (1996) notes that positive peer group treatment as practiced in Veteran's Centers and in rape crisis centers provides the ideal setting for trauma survivors. Although support groups and the VA system doubtlessly provide a buttress against intense symptomology, the long-term sustainment of recovery for even one year has been negligible. Some evidence also exists that uncomplicated PTSD may respond to exposure types of therapy such as flooding and implosion (Foa, Riggs, Massie, & Yarczower, 1995).

Pharmacotherapy also has a place in the treatment of acute trauma. In a number of clinical trials, improvement has been documented with imipramine, amitriptyline, phenelzine, fluoxitine, and propranolol (Friedman, 1996). Southwick, Yehuda, & Giller (1994), in a quantitative analysis, suggested that tricyclic antidepressants and monoamine oxidase inhibitors are efficacious with intrusive symptoms although fluoxitine, amitriptyline, and possibly valproate have shown some success with avoidant symptoms (van der Kolk, van der Hart, & Burbridge 1995). To date, no single drug or drug combination has been shown to be definitive in treating PTSD symptomology and most, if not all, symptoms return if the medication is terminated.

Probably the most common form of PTSD found in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition [DSM-IV], (American Psychiatric Association, 1994) is PTSD comorbid with other Axis I disorders. When complications arise with other symptomology such as depression, substance abuse and various anxiety disorders, it appears that simultaneous intervention is more effective than series approaches.

Post-traumatic personality disorder is found in individuals who are exposed to prolonged traumatic circumstances, especially childhood sexual abuse and combat atrocities. According to Marmar, these individuals are frequently found to meet the criteria for PTSD as well as one or more personality disorders such as borderline, dissociative identity and antisocial personality. Long term individual and group treatments have been described for patients by authors such as Scurfield (1993).

One formulation of a treatment regimen for PTSD encompasses a variety of treatment modalities across three general phases. First and primarily, the clinician must earn the right to gain access, establish trust, and create a safe environment. Secondly, the therapist must begin uncovering and exploring traumatic material, titrating intrusive recollections and dealing with avoidant and numbing defense mechanisms. Thirdly, the clinician must assist the patient to disconnect with the trauma and reconnect with family, friends, and society, (Friedman, 1996). This paper will explore the empirical literature for three distinct age groups and assess the basis in research for these and other treatment claims.

Methodological Considerations

Post-Traumatic Stress Disorder (PTSD) is an anxiety based disorder characterized by specific symptoms which follow exposure to an extreme traumatic stressor. Seven primary criteria define PTSD. Criterion A1 is exposure to an extreme traumatic stressor involving direct threat to the personal integrity of the individual or other person. It can also include learning about that same assault on someone close to the person. The person's response to the event must involve intense fear, helplessness, and horror. In children this could involve disorganized or agitated behavior (Criterion A2). The characteristic symptoms include persistent re-experiencing of the traumatic event (Criterion B), persistent avoidance of stimuli associated with the trauma and a numbing of general responsiveness (Criterion C), and persistent symptoms of increased arousal (Criterion D). Criterion E requires the full symptom picture to be present for more than 1 month, and Criterion F that the disturbance must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning DSM-IV (1994).

Measures

Several common assessment measures are used in the treatment of PTSD. Their function is to place patients into treatment groups, delineate and measure specific degrees of symptoms and their changes over time, as well as give an impression of symptoms to both patients and external raters. The following is a list and brief description of some of the most common measures used for this disorder. Several authors created their own scales to describe specific aspects of their work. These scales will be described at the appropriate point.

The Beck Depression Inventory (BDI) is a 21-item self-report questionnaire widely used in research on depression (Beck, Steer & Garbin, 1988). It has been used to assess depression in rape victims and was found to produce results similar to the Hamilton Rating Scale for Depression. The assessors report a split-half reliability of 0.93, with correlation's with clinical ratings ranging from 0.62-0.66.

The Birleson Depression Inventory is an 18-item self-report questionnaire that has been shown to adequately identify depressed children while excluding most non-depressed children (Birleson, Hudson, & Buchanan, 1987). Firth and Chaplin (1987) confirmed its value as a screening instrument, although they found a wider range of scores in their normal sample.

The Child Depression Inventory (CDI) is a 27-item measure of depression in children and adolescents aged 7 to 17. It taps depressed mood, anhedonia, vegetative symptoms, negative self-evaluation, and depressive behavior. Kovacs (1992) reports solid reliability and validity.

The Impact of Events Scale (IES; Horowitz, Wilner, and Alvarez, 1979) is a 15-item scale that consists of two subscales: Cognitive Intrusion and Avoidance. It has acceptable internal consistency and test-retest reliability. Horowitz et al., (1979) reported the internal consistency of the subscales to be 0.78 for Intrusion and 0.80 for Avoidance and the split-half reliability for the total score to be 0.86. It is reportedly sensitive to changes in symptomology of rape victims and veterans. (Resick, Jordan, Girelli, Hutter, & Marhoefer-Dvorak, 1988; Scurfield, Kenderdine, & Pollard, 1990).

The PTSD Symptom Scale - Self-Report (PSS-SR) is a 17-item standardized interview scale (Foa, Riggs, D'Ancu, & Rothbaum, 1993) designed to correspond to the DSM-III-R symptoms of PTSD. Each item is rated on a severity scale of 0 (no symptoms) to 3 (most severe symptoms) so that the total score ranges from 0-51. Internal consistency for the scale was 0.85 and test-re-test reliability across one month was $\underline{r} = 0.80$. Inter-rater reliability for the interview was kappa = 0.91 for diagnosis and $\underline{r} = 0.97$ for symptom severity. The PTSD Symptom Scale is strongly correlated with Intrusion ($\underline{r} = 0.73$) and Avoidance ($\underline{r} = 0.63$) subscales of the Impact of Events Scale and with Kilpatrick's (1988) Rape Aftermath Symptom Test [RAST] ($\underline{r} = 0.79$) The PSS has been found to be sensitive to changes in symptomology (Foa, et al., 1993).

The Revised-Children's Manifest Anxiety Scale (R-CMAS) is a 77-item questionnaire designed to assess the presence or absence of variety of anxiety related symptoms. Reynolds & Paget (1981) report adequate validity and reliability. Factor analysis has shown three classes of anxiety items: physiological, worry, and concentration, as well as a lie or social desirability scale.

The Social Adjustment Scale (SAS; Weissman & Paykel, 1974 is a 21-item self-report used to assess the social role functioning of depressed women. A self report version of the SAS was used by Resick, Calhoun, Atkeson, & Ellis (1981) who reported a test-retest reliability of 0.74.

The State-Trait Anger Inventory (ANGER; Speilberger, 1988) is a 20 item questionnaire that evaluates feelings of anger. It is comprised of a 10-item state anger scale that evaluates the intensity of anger at the time the instrument is completed and a 10-item trait anger scale that evaluates general feelings of anger. the internal consistency (Cronbach's alpha) for the state anger scale is 0.93. The trait anger scale is not used in most studies on PTSD because it is reported to measure a stable characteristic not treated in these studies.

The State Trait Anxiety Inventory (STAI; Speilberger, Gorsuch, and Lushene, 1970) contains 40-items: 20 measuring state anxiety and 20 measuring trait anxiety. Test-retest for reliability for state anxiety was .40. Internal consistency ranged from 0.83 to 0.92. The trait anxiety scale is not used in most studies on PTSD because it is reported to measure a stable characteristic not treated in these studies.

Structured Clinical Interview for DSM-III-R (SCID) is among the most frequently used instruments to assess PTSD. The SCID (Spitzer, Williams, & Gibbon (1987) is a diagnostic interview developed from criteria in the DSM-III-R with high inter-rater reliability and strong correlation with other PTSD measures such as the M-PTSD and the IES. The PTSD module of the SCID was developed for the National Vietnam Veterans Readjustment Study (Kulka, et al., 1988).

The Symptom Checklist-90-Revised ([SCL-90-R] Derogatis, 1977) is a 90-item Likert scale used extensively with veterans and rape victims. Derogatis has reported acceptable test-retest and internal consistency reliability and both concurrent and discriminant validity for the scale. There are three global scales (Somatization, Obsessive-Compulsive, Interpersonal Sensitivity) and nine symptom scales (Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism).

The Trauma Symptom Checklist for Children (TSCC) is a 54-item self-report instrument consisting of six subscales: Anxiety, Depression, PTSD, Sexual Concerns, Dissociation, and Anger. This also appears to be a reliable and valid instrument (Elliott & Briere, 1994).

Purpose

The purpose of this review is to determine what are the most widely successful treatments for which symptom clusters. The treatments will be evaluated by how effective they were in reducing or remitting multiple clusters of PTSD symptoms and by how reliable and valid the studies themselves were. One major factor increasing the difficulty of determining clear results has to do with variations in methodology across treatments. Outcome research which has been done has been plagued with a variety of methodological flaws, some based on ethical considerations and some not. For example, most of the studies conducted to assess treatment efficacy for sexually abused children failed to use controlled, no-treatment groups. This was due in part to the ethical problems associated with withholding or delaying treatment for these children (Celano, Hazzard, Webb, & McCall, 1996). Given this concern, one practical solution would be to compare the efficacy of two different treatments. To date, only one child study (Downing Jenkins & Fisher, 1988) has done so and that study was not sound because of other issues such as non-random assignment of subjects, lack of standardized assessment tools, and non-standardized application of treatments. These problems are prevalent in much of the clinical research.

The definition of improvement, such as symptom reduction and amelioration, has been measured differently in different studies. Many studies reporting efficacy of treatment utilized only self-report measures as a means of evaluating progress in treatment (Lanktree & Briere, 1992; Schapiro, 1989a, 1989b). While this is useful for monitoring change in a self-paced treatment program, it does not provide sound baseline measures for outcome comparisons (Lohr et al., 1992). Six of the first eight published research reports on EMDR yielded questionable reliability over time due to the singular use of client self-report measures (Garrett, 1996) and examiner demand effect (Campbell and Stanley, 1963). Others relied on statistical significance but did not present effect-size data.

Another issue is the variations in the way studies measured different symptoms. There are some well known and standardized measures of PTSD symptomology in the field. Many studies reporting success with this disorder did not use these measures.

Variations were also seen in methods across treatments, especially regarding the standardization of treatment protocols. It is not possible to determine whether a group used in a VA hospital to reduce social isolation is conducted the same way a group was conducted to treat non-military women who suffer PTSD symptoms subsequent to a rape. Few studies reported results including a protocol of the treatment used so it could be replicated. EMDR as a treatment regimen has only recently published a standardized administration text (Shapiro, 1995), and so most studies reported did not have this as a guide.

One complicating issue that is found in many of the studies including veteran subjects is that of disability compensation. In most, if not all, of the military studies, the subjects either had already received or were in the process of applying for disability benefits because of their traumatic suffering. If someone is receiving compensation for a particular disorder, be it monetary, social reinforcement, living quarters or others, there is strong pressure to retain the disorder or risk losing the benefits. The groups at many of the VA sites may also be the only social reinforcement that the individuals get, and so, being sick is a way for them to paradoxically remain healthy (Scurfield, Kenderdine, & Pollard, 1990). It is also possible that, in some cases, symptoms are over-reported to retain benefits.

Many studies reporting success during the treatment have no follow-up data. This is particularly problematic for PTSD because, in the studies that do have follow-up information, there is a high recidivism as early as four months after the termination of treatment. Many studies show success on certain aspects of the disorder but decline in treatment effect on the whole at follow-up. (Hammarberg and Silver, 1994). The standard follow-up period has been one year in the majority of studies that reported them, as fluctuations in symptomatology seem to level out by that point. Jones (1988) noted that it is much simpler to show positive outcome at the end of treatment with one treatment measure and one symptom than a combination thereof. While this may be true, it does not reflect either the scope of the disorder or the predominant treatment approach for trauma recovery, which currently is the multifaceted inpatient treatment typically found in the Veterans Affairs Medical Center (VAMC) system.

The increase in the number of therapeutic modalities offered in a concentrated time-frame, such as inpatient care at a VA facility, would seem to imply a greater likelihood of comprehensive success. However, Hammarberg (1994) notes in an empirical study of the Coatesville PA VAMC, that a large diversity of therapeutic modalities does not necessarily improve clinical results. To date, no studies make recommendations about which treatments to combine for the most effect, even though there are many facilities which combine wide varieties of treatments. Also no studies used time as a control variable to assess its effects on outcome.

Another methodological issue of concern is sample selection. Few studies utilized random assignment to groups but rather took patients who self-selected to fill the groups. While these patients usually work well in treatment, volunteers are known to have different traits than the general psychiatric population.

Most studies attempting to measure a treatment's utility excluded confounds that they believed might adversely affect the clarity of their results, for example, the screening out of obvious characterologic problems, psychosis or drug dependency. Patients with PTSD and comorbid symptoms may experience interaction effects. The presence of additional symptomatology may exacerbate or at least change the effects of the trauma. These symptom combinations are among the most common in this treatment population and yet few empirical studies conducted systematic evaluation of patients with more than one diagnosis.

Certain evaluations of outcome literature seem to indicate that there are differential success rates between treatments at different stages. Van der Kolk (1995) recommends a phase oriented application of treatments to enhance success. However, no empirical studies found in the literature compare different treatments at different stages of onset.

Treatments of Adults (Age 20 and above)

Adult victims of PTSD have the longest history in the clinical literature about trauma as well as the most well researched treatment protocols to date. Adults present the most chronic and debilitating symptoms of PTSD and the greatest challenge to the clinician for full recovery. Nearly every therapy model ever created has been used to intervene with this population. Over the years a few therapies have emerged as helpful with at least some aspects of PTSD. These will be looked at individually and in combination to recommend an integrated intervention program for the most chronic sufferers of this disorder.

Psychotherapy

Cognitive Behavioral

Behavioral goal setting is one of the clearest and simplest methods of therapy which has shown some success in the treatment of PTSD. Yair, Mikulincer, Nardi, & Shoham (1992) provided one review of a study of Israeli army soldiers with chronic PTSD. In it, they describe the systematic success of behavioral goal setting with these individuals on target behaviors associated with PTSD, including anger control, avoidance of civilian and military altercations, anxiety/thought control, fitness improvement, sleep effectiveness, memory and concentration, leisure, self-discipline, assertiveness, work skills, social skills and familial skills. All of these variables, when placed in a systematic framework, showed improvement which trainee and therapist alike could see. The framework used to measure these behaviors was a Pocket Self Evaluation Schedule, created specifically for the soldier and his commander.

For assessment purposes, the target behaviors were collapsed into 11 groups and then assessment scores were taken at five time intervals. These were then evaluated using one-way analyses of variance (ANOVA) to measure the effects of time. Post hoc tests for repeated measures were done, indicating gradual but significant improvement in each of the target behaviors. A one year follow-up was completed in which trainees were interviewed and asked about their symptoms. All of the trainees were reportedly still convinced that they had been helped.

The scale measuring success was created for this project and, as such, has no tested validity or reliability. Soldiers and Commanders alike are likely to have an investment in the soldier's progress (demand effects) and, while accountability can be helpful in achieving results when the reviewer is not neutral, one risks skewing the results. The researchers could have reduced this potential confounding influence by using an independent rater. One shortcoming not listed by the authors that limits generalizability is that all the participants were military trainees. This fact may influence positively their proclivity to create and systematically follow behavioral task lists as it fits well with their military training. It is possible that those not inclined to or habituated by the military milieu may not do as well on externally motivated tasks. It should be noted that these follow-up assessments did not use any systematic rating scale of PTSD symptomatology. The results reported were simply trainee comments. These concerns do not eliminate the success rates found in this work. However the results are far from definitive.

In their critical review of exposure-based therapy, Frueh, Turner, and Beidel (1995) note the lack of consensus concerning treatment of the wide variety of symptoms associated with PTSD and attempt to make the case for what they call intensive treatments such as flooding and implosion and graduated treatments like systematic desensitization. Flooding and implosion are terms that are often used interchangeably. They are both based on learning theory extinction paradigms but there are some procedural and theoretical differences between the two. Flooding is the presentation of in vivo (real life) or imaginal trauma-related stimuli (sights, sounds, locations or events that are associated with the trauma). Implosive therapy extends the flooding principle to include exposure to hypothesized psychodynamic cues such as fear of abandonment, isolation or loss. Both these treatments theoretically reduce fear and anxiety responses as these fear-cues are presented in the context of no threat. If exposure therapy is used, relaxation (counter-conditioning) should not be used because one inhibits the other's therapeutic impact.

Keane, Fairbank, Caddell, and Zimering (1989) indicated some longevity in therapeutic gains by demonstrating significant results with the reduction of certain subjective distress symptoms such as anxiety and depression at both the post-test and six-month follow-up. They did this by comparing implosive (flooding) therapy to a wait-list control in a randomized clinical trial. Twenty-four Vietnam veterans were randomly assigned to either an exposure therapy group or a wait-list control group. Both groups were given evaluations of PTSD symptomology pre-and post-therapy by a clinician and completed standard psychological inventories, including the Beck Depression Inventory, Zung Depression Scale, MMPI, Spielberger State and Trait Anxiety Inventories, the Fear Survey Schedule, and a measure of social adjustment developed for the study. The two groups were matched on demographic variables such as age, education, marital status, race, service branch, enlistment status, service connected status, or degree of combat exposure. They also were similarly based on pretest psychometric assessments.

The 11 subjects in the experimental group received 14-16 exposure based sessions from one of four individual therapists. They also received 2 to 3 sessions of relaxation training before the exposure component was done. This use of relaxation treatment is not a common aspect of exposure-based treatments because it runs counter to the extinction paradigm. The authors used it to teach patients that they have some control over their feelings which they then could use to manage feelings outside of treatment. Sessions were 90 minutes in length containing 45 minutes of exposure with pre- and post-therapy relaxation and integration of information.

At post-treatment, the exposure group was significantly lower than controls on the BDI, the Fear Survey, the SSAI, several MMPI scales (1, 2 & 3) and therapist ratings of startle responses, memory and concentration, anxiety, impulsivity, irritability and legal problems. They did not show greater improvement than controls on the Zung depression scale and the Trait Anxiety Scale. These differences were still in place at the six-month follow-up.

Keane, Scott, Chavoya, Lamparski, & Fairbank (1985) also noted no effect on any measure of social adjustment. The implication here is that while controlled exposure to a traumatizing stimulus in a safe context allows the subjects to reevaluate the event and process or work through the affect laden memories, it does not necessarily impact social functioning. The authors state that while social adjustment was not impacted directly by exposure based interventions, they remain crucial for the holding of long term gains.

Several limitations were noted by the author such as small sample size, failure to assess for drug/psychotherapy interaction (some of the exposure patients were inpatients receiving medication), failure to differentiate between therapist contact time and treatment gains, and failure to attend to comorbid diagnoses. Other studies reporting use of exposure therapy with good result seem to indicate a much longer session time as standard such as 120-150 minutes versus the 45 minutes used here. The exposure treatment in this case was presumably dealing with cognitive avoidance of stimulus as it used only imaginal cues. However this treatment does not necessarily remit behavioral forms of avoidance (Richards, Lovell, & Marks, 1994) Also no mention was made of dropout rate. With these issues in mind, it does appear that exposure treatment produced both statistically and clinically meaningful changes in some veterans. These results were echoed by Foa, Rothbaum, & Molnar (1995) in the treatment of rape victims.

Richards et al. (1994) extended this discussion, and reportedly the success rate, by adding in vivo exposure to the imaginal one. Fourteen individuals, non-combat and non-rape, who met the criteria for PTSD, were divided into two groups and given four weekly, hour long sessions of live exposure and the same of imaginal exposure and at least one hour of exposure homework in between daily sessions. The two groups, each with 7 subjects ($\underline{n} = 7$), alternated the sequence of treatments. Group 1 received four hours of live exposure followed by 4 imaginal ones. Group 2 received the reverse.

Outcome was measured by self-report assessment at pre-, mid- and post-treatment and at follow-up points of 1, 3, 6, and 12 months. Measures included the Revised Impact of Events Scale (IES), the PTSD Symptom Check List (PTSD-SCL), the Problems and Targets measure, the BDI, the Fear Questionnaire, the General Health Questionnaire, Work and Social Adjustment measure and the SUDS scale, which was taken weekly.

No difference was found between groups in terms of significant results. Improvement was significant for PTSD specific symptoms, including intrusive, avoidant and hyper-arousal subscales at post-test ($\underline{p} < .0001$). Additionally, improvements were seen on the phobia and dysphoria measures as well as work and social adjustment ($p < .001$) Other areas of improvement included depression (BDI) and general health ($p < .01$) At the 12 month follow-up, these gains were maintained or continued to grow. Unlike other studies, measures of general health and social adjustment were also improved in line with specific PTSD symptomatology. The authors hypothesize that this was due to the addition of in vivo exposure to the treatment protocol. Limitations included the lack of published effects sizes, no control group, small sample size, and limited population.

In conclusion, exposure based treatments have provided some evidence of treating many symptoms within PTSD such as intrusion and physiological reactivity. At this point, however, they do not appear to have a consistent impact with all of them, particularly the negative symptoms of behavioral avoidance, social withdrawal, and emotional numbing. They also do not seem to impact some of the emotional management issues such as anger control Frueh, Turner, and Beidel (1995). One also wonders about the premorbid level of social functioning in subjects as some studies show improvement and others the lack of improvement in social involvement. It may be that improvement in this facet of functioning is more influenced by history than exposure treatment.

To deal with these symptoms, different forms of cognitive therapy have been applied. There are a number of different therapies that have evolved from Beck's primary model of Cognitive Therapy in 1979 (Beck, Rush, Shaw, & Emery). Subtypes such as Rational Emotive Therapy, Cognitive Processing, Reconstructive Therapy and others are used today, all of which are consistently based on the belief that the cognitive component is the basis of mental illness and mental health. Chard (1995), in an empirical dissertation analyzing effect sizes of different treatments of PTSD in sexually abused women, noted two cognitive models which have shown statistical and clinical success. Jehu (1989) found 31 women out of a sample of 34 no longer required treatment for interpersonal or sexual dysfunction after treatment with reconstructive therapy. This included the use of techniques to identify and monitor distorted beliefs and mood disturbances in victims, such as instant replay, remote call, role play, induced imagery, confrontation and client recording. A cognitive group model was utilized by Sultan and Long (1988) in their pre-posttest study of 16 abused female prison inmates. They used a 16 session, 90 minute, short term group treatment approach designed to assist individuals who share similar specific psychological difficulty. This model was designed to provide relevant information to the individuals in order to modify maladaptive attitudes and beliefs. At post-treatment, these victims showed significant improvement on several measures including improved self-esteem , reduced alienation and increased trust in people. These improvements are remarkable in that they occurred with a prison population which is considered extremely difficult to assist. Limitations of the study included the lack of a control group, no follow-up data, a 50% drop-out rate of subjects and no independent assessors to measure change.

Two other cognitive strategies that have been noted recently are monitoring and blunting as presented by Solomon, Mikulincer, and Arad (1991) in their assessment of PTSD victims of the 1982 Lebanon war. Monitoring reflects a disposition to seek out informational cues about the threat and to attend to information relevant to it. Blunting reflects a disposition to avoid informational cues about the threat and to attend to distracting stimuli, thus helping to "blunt" the impact of objective threats. These two coping styles are believed to be the two primary options for people in dealing with threatening events and the information they convey.

The sample consisted of 348 veterans of the Lebanon war from a wide variety of ages and nationalities who had been identified as combat stress reaction casualties, checked two years after the conflict. The subjects were randomly selected out of that population and told that they had the opportunity to participate in a periodic health assessment. They were given questionnaires and informed that this information would remain confidential and would not affect their military status in one way or another (to allay fear of reprisal as well as to stop any hopes of gaining disability benefit). The impact of the treatment was measured by Miller's behavioral style scale, the PTSD inventory, SCL-90, a Social Functioning Scale (SFP), the Impact of Events Scale (IES), and the Ways of Coping Checklist, all with known, adequate reliability and validity. These tests yielded a significant relationship between high monitoring strategies and low PTSD scores and a converse one with high blunting scores associated with high PTSD symptomology.

The data was first factor analyzed and four factors were derived, each representing a style of handling traumatic situations. These were labeled: problem focused coping, emotion focused coping, seeking social support and distancing. Two-way multivariate analysis of variance (MANOVA) was used to analyze the data and then univariate ANOVAs were done for differentiating high and low monitoring and blunting groups. Tests for simple main effects were used to reveal the pattern of the interactions found between the monitor and blunter style. Monitors were found to have less severe psychopathology and fewer problems in social functioning than any other groups and they suffered least from PTSD. Additionally, both intrusion and avoidance symptoms were lower among the monitor group. High monitors also showed better coping styles using problem-focused and help seeking strategies as well as less distancing strategies. This result could be mitigated by the possible association in the blunting measure with known pathology such as avoidance, suppression and denial, and lack of differentiation between defenses and symptoms. The results do seem to indicate, however, that active problem-focused coping strategies are more indicative of a path toward mental health and that treatment of blunting strategies such as avoidance and distancing (as seen in PTSD) is necessary and helpful.

In a Meta-analysis of PTSD outcome studies involving sexually victimized women, Chard (1995) found that both Cognitive Behavioral and Psychodynamic individual treatments were superior to both group and supportive individual therapy at a 3 and 6 month follow-up. However, any treatment was found to be significantly better than no treatment at all.

In a comparison of two cognitive behavioral procedures to each other and to counseling, Foa, Rothbaum, Riggs and Murdock (1991) assessed the effects of Stress Inoculation Training (SIT), Prolonged Exposure (PE), and Supportive Counseling (SC), as well as using a group of Wait List controls (WL). Stress Inoculation Therapy (SIT) was modified in this study from Veronen and Kilpatrick's (1983) original model. It consisted of learning coping skills such as deep breathing and deep muscle relaxation exercises, as well as thought stopping (Wolpe, 1958), cognitive restructuring (Beck, Rush, Shaw, & Emery, (1979) and guided self-dialogue (Meichenbaum, 1977). Prolonged Exposure (PE), the second modality in this study, is a process where by the victim relives the rape scene in imagination and describes it as vividly as possible aloud in the present tense. The patient relives the scene several times during a 60 minute therapy session. These narratives were recorded and the patient was instructed to listen to the tape at least once daily as homework. Additional homework included in vivo exposure to feared and avoided situations judged by the patient and therapist to be safe. The last treatment regimen, Supportive counseling (SC), involved the patient learning a problem solving technique and speaking to a therapist who played an indirect and unconditionally supportive role. Here, homework consisted of the patient keeping a diary of daily problems and her attempts at problem solving. Patients were redirected away from any discussions of the assault.

Subjects were 45 female victims of rape who met the criteria for PTSD in the DSM III-R as diagnosed by one of the experimenters. Both subjects and therapists were randomly assigned to one of three treatment conditions after 10 subjects were randomly assigned to the WL control. Exclusion criteria included previous diagnosis of organic mental disorder, schizophrenia, or paranoid disorders, severe depression, bipolar depression, or depression accompanied by delusions, hallucinations, bizarre behavior or current drug abuse.

This study, involving three treatment groups and a wait-list control group, used nine bi-weekly individual meetings of 90 minutes in length. The course of treatment lasted 4 1/2 weeks. Supervision of therapists was also conducted bi-weekly by Dr. Foa. At the end of the initial study, the WL control group was offered entry into either a PE or SIT group.

At follow-up, all three treatment groups (PE, SIT & SC) improved significantly, however none of the groups improved significantly in-between post-treatment and follow-up. The (PE) group did show a trend toward improvement. A clinical assessment of improvement was also conducted, being defined as having post-treatment scores greater than two standard deviations below pre-treatment. At post treatment 71% (n = 10) of the SIT patients and 40% (n = 4) of the PE patients showed significant improvement. At follow-up the three treatment groups did not differ significantly with respect to the number of improved patients. Fifty percent (n = 7) of the SIT patients and 40% (n = 4) of the PE patients no longer met the criteria for PTSD while 90% (n = 10) of the SC group still retained the diagnosis. An interesting aspect of this study highlighted the difference in the speed and degree of symptom relief for SIT and PE. SIT relieved more symptoms to a greater degree immediately after treatment than did PE. Yet, while these SIT subjects still did not retain the PTSD diagnosis at follow-up, their symptoms had begun to return. Alternately, while PE did not seem to produce as strong immediate results as SIT, the results continued to improve as time went on. This implied that, while both treatments had significant results at follow-up, the SIT gains might be lost as time went on and the PE results would more likely to continue into the future. It also indicated that these treatments might be combined to give optimal results both in the short and long term.

The rationale offered to explain the apparent change in the most effective treatment was that SIT produced immediate relief as it was aimed at anxiety management and would need to continue to produce results. In contrast, PE initially caused exceptionally high levels of anxiety as the victim was required to repeatedly confront the rape memory. However, if the level of anxiety is able to go down in the treatment at all it is thought to bring about permanent results through the changing of the trauma memory. Furthermore, it was also interesting that mere contact with a therapist, possibly with the perception that the individual is going to get well, brought some relief, but not with PTSD specific symptomatology. The Foa et al. (1991) study is consistent with those of Veronen and Kilpatrick (1982) and Resick, Jordan, Girelli, Hutter, & Marhoefer-Dvorak, 1988 with regard to SIT and Keane et al. (1989) for PE, as treatments for PTSD symptoms. However, this study showed that PE reduced all three symptom clusters of PTSD as opposed to Keane's which did not reduce avoidance. It is believed that this is due to the addition of in vivo exposure in Foa et al., and the deletion of relaxation training in Keane et al. This study by Foa, et al. indicates that some combination of SIT and PE would be optimal for a PTSD treatment program. Yet, some aspects of SIT, i.e. those which include relaxation, may need to be excluded until after the PE treatment to allow the exposure's full effect.

In this strong analysis of three different treatments, the effectiveness the Foa et al., (1991) study also had several limitations. While the study started with a relatively large subject pool (n = 45) it was then divided into four treatment groups, retaining the limitations of a small sample. These results, despite their statistical and reportedly clinical impact, still left a large percentage of their members meeting the diagnostic criteria for PTSD. Also, the researchers were the trainers and evaluators of the results, allowing for the possibility of bias. This cannot be considered an example of a comprehensively effective treatment in any true clinical sense. The combination of SIT and PE may well be helpful aspects of a PTSD treatment regimen, but these results are only minimally encouraging. These treatments did remove the clinical diagnosis of some individuals but it is not known to what degree this was perceived as relief to the subjects. Additionally, an earlier study by Resick et al. (1988) found that assertiveness training and supportive psychotherapy were not statistically different from SIT in their impact.

Eye Movement Desensitization and Reprocessing (EMDR) may be one of the more significant discoveries of our decade. Discovered and developed by Francine Shapiro, Ph.D. (1989), it involves the use of a series of intentional, saccadic eye movements, coupled with recall of a traumatic event to aid in the processing of traumatic memory. Trauma treatment using EMDR involves the cascade of associations to the event or events, directed by the client, surrounding the total phenomenological experience of the trauma. While engaging in the eye movement process, the goal is to contain as much of the total phenomenological experience as possible (Shapiro, 1991). This includes: (1) imagery and visualization of the event(s), (2) cognitive associations to and beliefs about the event(s), (3) any sounds or verbal exchange within the memory, (4) olfactory memory, and (5) tactile sensations or somatic responses. Once the memory or experience has been desensitized, the reprocessing component is introduced and worked through. Several studies have been done examining the efficacy of EMDR and much controversy surrounds its use. Some of the controversy is engendered by Shapiro's (1989a, p. 201) claims that in one session, EMDR can "completely desensitize a subject's traumatic memory". While her study of 22 subjects did produce reductions in some PTSD symptomology, it lacked generalizability due to small sample size, lack of a control group, and demand characteristics as Shapiro was both the treatment provider and assessor. As presented in Shapiro's work, this treatment seems to show promise in the treatment of at least two core aspects of PTSD, those of re-exposure and avoidance, with clinically but not statistically significant reductions of hyper-arousal and depression.

In recent years many other research studies have been done to test the efficacy of EMDR in treating PTSD symptomology with varying degrees of generalizability. According to Schapiro (1995), there are already more controlled studies supporting its efficacy for PTSD than for any other treatment. One recent study that showed positive results with sound methodology was done by Wilson, Becker, and Tinker (1995). This group studied the effectiveness of EMDR on 80 subjects suffering from traumatic memories and other psychological symptoms. The subjects were randomly assigned to treatment or delayed treatment control group as well as being randomly assigned to one of five EMDR trained therapists. An independent rater was used to administer the Avoidance and Intrusion scales of the Impact of Events Scale (IES) the Anxiety and Depression dimensions of the Symptoms Checklist-90-Revised (SCL-90-R), and the State Trait Anxiety Inventory (STAI) in addition to using the client self report of the Subjective Units of Distress scale (SUD) and Validity of Cognition (VoC) ratings. There were three EMDR sessions along with pre and post-tests as well as a three month follow-up evaluation.

Wilson, Becker, and Tinker (1995) controlled for several confounds by use of an extensive set of exclusion criteria. The authors recruited subjects through the newspapers and therapists in their general demographic region. Out of 215 respondents, 80 subjects were selected based on criteria that excluded individuals who had any medical and/or psychological problem except PTSD. Individuals who were in litigation surrounding their trauma were also excluded. All subjects were screened for PTSD with the PTSD Interview (PTSD-I) by an independent rater.

The results of the study by Wilson, Becker and Tinker showed improvements in both the treatment and delayed treatment groups. Multivariate analysis (Wilks' lambda) was used on the nine dependent measures (subscales measuring symptomatology) and each showed significance. Additionally, canonical correlation for this effect was 0.90, indicating that 81% of the variability of scores was accounted for by the EMDR treatment. The participants in the delayed-EMDR condition showed no change between $T1$ and $T2$ and none was expected. The delayed treatment gains were seen at T 3, after the treatment was instituted. This led to the use of an alpha level (a) of .05. Treatment effect sizes were calculated for the trauma-specific measures (SUDS, IES Intrusion and Avoidance) and were larger than those for the general measures (SCL-90-R. Somatization, Interpersonal Sensitivity, Depression and Anxiety; State and Trait Anxiety). All effect sizes after EMDR treatment were greater than that required to have a minimum effect of $d = 0.5$ and the effect on avoidance and intrusion (IES) exceeded the large effect mark of $d = 0.8$. Some limitations of the treatment effect included a difference between the SUD and IES (avoidance & intrusion) scales which showed significant improvement whereas the STAI and SCL-90-R showed non-significant improvements. The EMDR group scores showed significant results. This may indicate that EMDR as a treatment is most efficacious when delivered as near the event as possible. This study is one of the strongest presentations of statistical and clinical effect in the treatment of PTSD.

In her own presentation of EMDR in relation to other controlled outcome measures, Schapiro (1996) states that, out of 12 studies since 1989, at least eight can be considered well controlled treatments. These treatments had adequate fidelity to procedural guidelines with large, long lasting treatment effects. In fact, she believes they are comparable to or better than the best results from the controlled studies of all other treatments. While it is beyond the scope of this paper to review every EMDR study, the one presented here, along with data drawn from other reviews, indicates that EMDR holds out much hope as a successful treatment with long term (one year) treatment gains. One example involves the subjects from the Wilson et al. (1995) study who did not meet the criteria for PTSD at a 15 month follow-up (Schapiro, F., 1996).

Psychodynamic

Perhaps the greatest void in the empirical literature is found in classical or contemporary psychoanalysis and psychodynamic psychotherapy. Neither of these major modalities has been brought very far into the realm of empiricism. The few models that have been brought in might be considered to be vastly different from what would be considered orthodox practice by individuals holding to those clinical assumptions.

Comparative studies that include treatments with a psychodynamic theoretical base are sparse in the literature. Marmar, Horowitz, Weiss, Wilner, and Kaltreider (1988) have done comparative studies with brief psychodynamic treatments and mutual help groups as well as brief dynamic treatment judged with independent raters, all with positive results. Marmar (1991) presents three clinical case reports of PTSD patients treated with brief dynamic psychotherapy and highlights different aspects of the treatment process guided by the theoretical principles of Sifneous, Mann, and Malan. While each of the cases reportedly came to a positive outcome, Marmar states that, at best, brief dynamic therapy is valuable for single incident trauma and better suited as a bridge to long term multi-modal therapy. There were no empirical data presented in these cases as they were intended to be illustrative of dynamic process with PTSD only.

One empirical study comparing cognitive, cognitive-behavioral, supportive, and psychodynamic therapy models in the treatment of women survivors of rape was a dissertation done by Chard, (1995). Chard searched four major databases of published articles and two for unpublished articles with specified search criteria limiting selected articles to empirical, primary research on treatment for this population. This search yielded 14 studies with a mean effect size of $\underline{d}$=1.457 and a $\underline{SD}$=1.012, which far exceeded Hummel's (1994) minimally acceptable benefit of $\underline{d}$=0.5 and Cohen's (1988) large effect size level of $\underline{d}$=0.8. When the 14 studies were collapsed and coded to fall into the four treatment categories, all four showed significant positive effect upon completion and at a six month follow-up. Between these groups, the cognitive model had the largest effect, maintaining its strength over time and actually increased its strength at a one year follow-up. The second largest effect was produced using the psychodynamic model followed by an "other" category and finally the cognitive-behavioral. Cognitive, psychodynamic and other categories were found to be significantly superior to the cognitive-behavioral and supportive treatment models at treatment completion and 6 month follow-up (Chard, 1995).

Additionally, Chard differentiated between treatments on various symptoms. She found that cognitive interventions were most effective in improving the subjects' general symptoms (*d*=2.489), followed by their event/stress (*d*=2.456), and PTSD symptoms (*d*=2.369). Cognitive-behavioral treatments showed more improvement on PTSD (*d*=1.128), interpersonal (*d*=1.110) and anxiety (*d*=0.960) symptoms. Supportive interventions aided in improving general symptoms (*d*=1.566) first, followed by depression (*d*=1.277) and somatization (*d*=1.026). The psychodynamic model was most effective with depression (*d*=2.092), general symptoms (*d*=1.986) and anxiety (*d*=1.733). Finally, studies in the "other" category improved the subjects' anxiety (*d*=3.444), general symptoms (*d*=2.782) and depression (*d*=2.084).

In general, Chard's results indicate strong therapeutic impact for the treatment of sexual victimization which, as a clinical issue, has strong durability over time. This also indicates that there may be clinical utility in employing different modalities to treat differing PTSD symptomology. Some differences of note were that while group therapy was found to be empirically efficacious (*d*=1.189, *SD*=.733), there was an indication that some women might be secondarily traumatized in hearing another group member's story. Individual therapy, in contrast, was found to be significantly more beneficial to female clients (*d*=2.233, *SD*=1.272). Chard attributes this difference to the exposure component of individual therapy which is not conducive to group. If one utilizes Chard's results in an attempt to compare treatments based on their effect size when treating certain disorders, cognitive strategies are clearly the most efficacious, having the largest effect sizes when treating 6 of 9 symptom clusters and second largest with the other 3 clusters.

Group

Group psychotherapy has long been a major feature of treatment for PTSD and there are several clinicians that consider it to be the treatment of choice because it reduces isolation and feelings of stigma, provides a support network, helps members express emotion and permits a more reality-based confrontation of trauma-based memories, as it comes from persons with similar experiences. Many group models attribute the therapeutic benefit more to techniques used within the group format than to the group's intrinsic curative features as described by Yalom (1985). Other programs rely on both technique and the restorative power of group. This is especially true within the Veteran's Administration inpatient treatment programs. Foy, Donahoe, Carroll, Gallers & Reno (1987) describe group therapy as the most frequently used and most widely discussed modality in clinical work with Vietnam veterans. Self help groups and community therapy modalities have also been a critical aspect of treatment for Holocaust survivors. Additionally, ethnic support groups were considered helpful by Japanese American internment camp survivors initially confronting that traumatic event (Loo, 1993).

Resick and Schnicke (1992) reported positive results using the group format to apply a treatment called Cognitive Processing Therapy, which is a combination of education, exposure and cognitive restructuring in a group format. Nineteen sexual assault survivors were placed in a group together and compared to a group of 20 wait-list controls who had been wait-listed for twenty weeks. This treatment consisted of 12 group sessions where the patients were initially given an introduction to and explanation of the group, the treatment, and an A-B-C worksheet intended to help them see the connection between thoughts and emotions. Next they were asked to work around writings they did about the meaning of the rape. This was a limited exposure time where they wrote and read an emotional account of their own rape. They then went to a cognitive therapy modality where they learned to identify and correct faulty thinking. From there the therapists introduced four themes found to be at risk for rape victims, specifically, safety, trust, power, and intimacy. The group then worked with these themes for the remainder of the sessions. The results were measured on the SCL-90-R, the IES, the PSS, the BDI, the SAS and the Structured Clinical Interview for the DSM-III-R (SCID-III). These measures showed significant improvement in both PTSD and depressive symptomology as an outcome of the 12 session group experience.

The reduction of PTSD and depressive symptomatology, as determined by positive results on all scales above, was corroborated by many of the women's reports of substantial improvement in their lives. This was in contrast to the wait list control subjects who reported no gains. The authors note that a significant aspect of this subject pool was that they had been suffering rape related reactions for years, which may provide even more hope for this intervention as it showed success with chronic symptomatology.

This study was limited by its quasi-experimental design in that all of the women were treatment seekers and were placed in the group based on their willingness for both treatment and to be in a research study. It also did not compare this treatment to any other to allow a comparison of relative effects nor could one determine within this study which was the most important aspect, for example, either the exposure treatment, the cognitive behavioral, or the group milieu itself. These critiques do not eliminate the impact of the positive correlation of both statistical and self-report measures however. The approach used may provide a model of a less taxing exposure therapy which may reduce the potential for re-injury of the clients.

One of the major curative areas of group psychotherapy is in the area of interpersonal relationships and self-esteem (Yalom, 1985). This was demonstrated in a study by Scurfield, Kenderdine, & Pollard, (1990), who listed the improvements of the participants as being self-esteem enhancement, self-awareness, and improved interpersonal relationships after a 12-week inpatient treatment in which group therapy was the corner stone. While the curative effects of groups in general have been studied, the specific techniques and goals of group work vary depending on the group. Group treatments are primarily found at inpatient facilities and are usually done in conjunction with other inpatient treatments such as psychoeducation and medication management. More will be said about group work in the integrated models section.

Pharmacological Interventions

There are two primary models for the use of Pharmacotherapy in the treatment of PTSD. The first view, found in Davidson (1992, p. 310), endorses using medications to "put traumatic memories under the surface" through the use of monoamine oxidase inhibitors (MAOI) and tricyclics. The second view, presented by van der Kolk, van der Hart & Burbridge (1995, p. 16), sees "psychotherapy as the cornerstone of successful treatment of PTSD" and medications are merely an adjunct to reduce excessive autonomic arousal to allow the work to begin. Whatever the view, Davidson (1992) notes six common goals for Pharmacotherapy: (1) reduction of phasic intrusive symptoms; (2) reduction of avoidance symptoms; (3) reduction of tonic hyper-arousal; (4) relief of depression and anhedonia; (5) improvement of impulse regulation and (6) control of acute dissociative and psychotic features. Van der Kolk van der Hart & Burbridge (1995), in their survey of pharmacological interventions, highlights the vast array of claims of usefulness for a variety of medications in treating

PTSD. Usefulness has been claimed for benzodiazepines, lithium carbonate, carbamazepine, clonidine and beta adrenergic blockers, but their efficacy has not been confirmed in double-blind, placebo controlled studies. Three double blind trials of tricyclic antidepressants have been published and two of them have shown some reduction of PTSD symptoms [Frank, Kosten, & Giller (1988); Kosten, Frank, & Dan (1991); Davidson, Kudler, Saunders, (1990)]. Amitriptyline has been shown to be effective in reducing the overall PTSD by reducing anxiety symptoms as well as some avoidance and intrusiveness (Davidson, 1990). Imipramine has shown some effect in the reduction of intrusive symptoms (Frank, et al. 1988; Kosten, et. al. 1991). Reist, Kauffmann, & Haier, (1989) also has shown positive effect in double-blind trials with intrusive and depressive symptoms using desipramine, and Braun, Greenberg, & Dasberg (1990) demonstrated reductions in anxiety in 16 Israeli PTSD patients with alprazolam. One important finding to emerge form these studies was the total lack of placebo response in chronic PTSD (Davidson, 1990). More recently, several researchers, have all shown that serotonin reuptake inhibitors (SSRI) show potential in the treatment of chronic PTSD [Davidson, Roth, & Newman, (1991); March, (1992); Nagy, Morgan, Southwick, & Charney (1993)]. Fluoxitine, for example, had profound effects on the numbing of arousal and some effects on intrusions. It also had a significant impact on affect disregulation, distorted relationships and loss of traumatogenic beliefs after five weeks on the medication (van der Kolk, et al., 1995).

In another review, pharmacotherapy was presented as a highly symptom specific intervention strategy for PTSD (Forster, Schoenfeld, Marmar & Lang, 1995). Their review's focus was on the validated use of lithium and fluoxitine in reducing aggressive behavior. The authors also recommended carbamazepine, propranolol and valproate as useful treatments for irritability and aggression.

Demartino, Mollica, & Wilk (1995) cited a positive historical base and five current case studies of Indochinese torture victims who responded safely and positively to MAOIs after not responding to tricyclic antidepressants. Comorbid symptoms of depression were ameliorated as well. These drugs bring with them concerns about the added risks associated with overdose and drug interactions as well as dietary noncompliance which are more extensive than those of other interventions.

Davidson (1992), in his review of the pharmacological literature, concludes that, initially, one must distinguish between acute and chronic PTSD. For acute symptomology the goals would be to reduce extreme agitation or disorganization and then to uncover, confront and abreact the dissociated trauma. Barbiturates and benzodiazapines have been helpful with abreaction. More recently, propranolol has been used to reduce symptoms of hyper-arousal and hypervigalence. For chronic symptomology, Davidson recommends tricyclics as a reasonable first choice treatment to assist in returning to nondisturbed sleep, although side effects could require a shift to another amine drug. Second line treatments could include propranolol, clonazepam, lithium or carbamazepine up to therapeutic levels, all of which reduce the intrusive and hyper-arousal components of PTSD. Non-response to one or more of these agents might then lead to the use of phenelzine or clonidine. Combinations of these drugs may be necessary in polymorphic or refractory symptomology (Davidson, 1992).

Van der Kolk (1995) recommends that different drugs be utilized not only for different symptoms but at different phases of treatment. Some medications, such as tricyclics or Serotonin Selective Reuptake Inhibitors (SSRI), should be given as close to the event as possible to decrease autonomic arousal. This, in turn, decreases nightmares and flashbacks, promotes sleep, and prevents the kindling effects thought to underlie the long-term establishment of PTSD symptomatology. Before deciding to prescribe medications, Davidson cautions that one needs to carefully assess for head injury and current drug or alcohol dependence. This is because PTSD symptomology can be brought on by either of these other causal factors and adding medications to them can significantly interfere with treatment or, in some cases, cause additional injury or death to the patient. Side effects are another consideration. Medications vary widely in their degree and type of side effects. For instance, some of the concerns for the more frequently prescribed medications include anticholinergic side effects, orthostatic hypotension, weight gain, excessive sedation of the tricyclics and sexual dysfunction with serotoninergics and MAOIs. Dietary and alcohol restrictions affect the compliance of patients with MAOIs as well. Additionally one must consider the cost, frequent dosing and perceived benefit. Sutherland and Davidson (1994) conclude that it was important to educate patients concerning the need for long-term therapy for some people and to make them aware of the generally slow response to medication.

Community Supportive Resources

Family and other social support systems are reciprocally influenced and influencing in the experience of traumatic stress reactions. Keane, Scott, Chavoya, Lamparski and Fairbank (1985) analyzed the effects of combat on social supports of Vietnam veterans and found that the greater the PTSD symptomatology, the greater the decline of social structure, indicating that the PTSD patient can experience secondary losses as the disorder adversely impacts the very network from which he or she most needs support. It has been well documented that social support has a strong buffering effect on stress reactions (Cohen & Wills, 1985) and its absence can exacerbate traumatic reactions as in the national failure in supporting Vietnam Veterans.

Community resources are cited in a number of studies (e.g., Hammerberg & Silver, 1994) as a useful adjunct to treatment and in some references (e.g., Van der Kolk, van der Hart & Burbridge, (1995), are seen as the first line of defense against the creation of chronic symptomology. This apparently consists of returning the individual to the pre-morbid social environment, both overtly and subtly communicating that the trauma was an anomaly and that it is over now and should become a memory.

One study that looked at the direct effects of social support on the recovery process of Vietnam veterans was done by Solomon, Mikulincer, & Avitzur (1988). Subjects for this study were 262 male Israeli soldiers who fought on the front line of the 1982 Lebanon war. These individuals were selected for the study by mental health personnel based on their demonstrating Combat Stress Reaction (CSR) symptoms and becoming ineffective as a combatant. The sample was assessed at points 2 and 3 years after the war. The main question was to what degree does locus of control and amount of social support affect recovery from PTSD symptomology.

Symptoms were measured using the PTSD Inventory, the Rotters Internal-External Locus of Control scale, the Ways of Coping Checklist, and the Social Support Scale. The scale of interest here, the Social Support Scale, is a 7-question, 4-point Likert-like scale designed to measure expressive (verbal commitments to help) and instrumental (tangible expressions of help such as loaning money) support that the subjects received from their social networks (family, friends and relatives). This index was analyzed at the two and three year points. There was a significant trend toward improvement in the perceived availability of social support from Time 1 to Time 2. Results indicate that social support was correlated with reduced levels of PTSD at both Time 1 and Time 2. With regard to social supports, changes in PTSD intensity were found to be significantly associated with distancing, [$r(135) = .19, p < .01$]. That is, a reduction in distancing behaviors (staying in isolation and not asking for help) were associated with a reduction in PTSD symptomology. More specifically this study revealed that the lessening of social withdrawal is predictive of a lessening of PTSD symptomology. The study also differentiated between the perception and the tangible presence of social support. Here the perception of support was found to be more highly correlated with remission of symptoms than tangible demonstrations of aid. This is true possibly because the act of subjects perceiving that they are being supported implies that they are affectively processing the event. The converse was also true. Social withdrawal appeared to increase PTSD symptomatology at both the 2 and 3 year assessment points. The implication of this and the previous studies is that social support is a necessary and powerfully ameliorating factor in the recovery process. It appears that one of the first, if not the first, therapeutic intervention in the treatment of PTSD should be assisting the traumatized individual to reconnect with those who care about him or her. This may need to be done as a formal therapeutic activity as well, because the support system may also need help adjusting to the circumstances which the trauma has brought it.

While this study commends the use of social supports to facilitate reduction of symptoms, it was not without its limitations. Since this study began after the onset of the symptoms, it cannot determine definitively the direction of causality. Also, the gathering of information regarding personal and social resources was, in this case, retrospective which can skew the data. There is also the possibility that the information could be explained by confounds not studied here such as spontaneous recovery through the effects of time.

Integrated Models

As Loo (1993) notes in her integrative sequential treatment model paper:

> While a few researchers have combined modalities, there has been no systematic integration of what is most efficacious among various treatment models. The closest approximations to an integrative clinical model of treatment are the overviews offered by Scurfield (1985, 1992) and Foy Donahoe, Carroll, Gallers, and Reno (1987). However these references do not generalize to victimization across different populations (p. 90).

This lack of integration has led Hobfoll et al. (1991, p. 850) to lament that "the best treatment for PTSD has not been established".

One study in a treatment program at the Boston VA Medical Center attempted to integrate multiple therapeutic strategies. Lyons & Keane (1989) reported a combination of treatments including an initial individual rapport building session followed by individual implosive therapy and groups teaching behavioral skills such as relaxation, problem solving and assertiveness/anger management. These modalities are used concurrently to impact the intrusive symptoms as well as social behavior. In Loo's conceptual paper (1993) an integrated sequential treatment model is presented that combines behavioral, cognitive information processing, existential and psychosocial approaches. However it did not address the biological or psychopharmacological issues.

Schwarz & Prout (1991) have attempted to glean the key factors across treatment models to determine the most common and critical aspects of treatment. Their distillation of principles from a spectrum of authors ranges from individual dynamic therapy to behavioral paradigms. Their guiding strategies for treatment are: (1) supporting adaptive coping skills; (2) normalizing the abnormal; (3) decreasing avoidance; (4) altering attributions of meaning; and (5) facilitating the integration of the self. Additionally, they encourage clinicians to see patients as soon as possible and in a time limited fashion, rather than long term.

In a theoretical compilation of treatments for PTSD, van der Kolk et al. (1995) reviewed the literature and advocated a phase oriented treatment model as did Schwartz and Prout (1991). Conversely, McFarlane (1994) found that Critical Incidence Stress Debriefing (CISD) immediately following exposure actually exacerbated long term symptomology. Therefore he recommended the reconnection with supportive networks first, to engage in activities that re-establish a sense of mastery. Foa et al. (1991) found that initial treatment of rape victims with Stress Inoculation Training was as effective as Prolonged Imaginal Exposure. However, at the four month follow-up, imaginal flooding had superior results to stress inoculation.

Van der Kolk et al. (1995) theorized that if there are differential effects within a four month time frame, it is likely that there would be differential results over a longer time-frame. In their conceptualization, three key objectives are paramount: (1) processing and coming to terms with the horrifying, overwhelming experience, (2) controlling and mastering physiological and biological stress reactions, & (3) re-establishing secure social connections and interpersonal efficacy. They recommend meeting these goals in a phase oriented approach. This includes an acute trauma phase, which may be limited to simply facilitating reconnection with ordinary supportive networks and engaging in tasks that reestablish a sense of mastery. This may also include certain kinds of pharmacological interventions geared to reduce autonomic arousal (decreasing nightmares, flashbacks and promoting sleep). This program cuts across therapeutic lines as opposed to relying on one type of intervention at each phase.

In the acute phase, one could also argue that imaginal flooding should be used as opposed to Stress Inoculation Therapy (SIT) because it promotes long term coping results. Abreaction also seems to fall in the near trauma phase. If symptoms continue or if the individual does not come in for treatment until long after the event (as is the case with many rape victims), Serotonin Selective Reuptake Inhibitors (SSRIs) may be exceptionally helpful in allowing the people to stay on current tasks and not dwell on past fears. Pitman et al. (1991) found that flooding had aversive results on individuals whose traumas were decades earlier. This result may imply the need to do exposure with desensitization or possibly a brief dynamic technique to encourage a returning to the memory. If the trauma from years earlier has taken center stage in the individual's life, socialization may be the key to reconnect the person with the world s/he has systematically come to avoid. The authors note that whatever psychotherapy is used, it must address two fundamental aspects of PTSD, the presence of anxiety and the pervasive effects the trauma has had on the victim's view of self and the world. To that end, the authors recommend the use of a variety of individual and group therapies, medication, and social/ceremonial activities that promote a sense of mastery, social connection and trauma as history.

While these theoretical models piece together much of what is valuable in the treatment of trauma from various perspectives, there has been no empirical or applied model that has tested these theories as a whole. While this reviewer agrees that some compilation of these treatments is necessary, how much of which ones and when are key issues yet to be determined. If one treatment is completely effective with 80% of all patients who are in the acute phase, the others modalities may be unnecessary or, if needed, used only in minimal or modified ways. The most extensive empirical data on combined models has been gathered through the Veterans Affairs Medical Centers. While these studies are far from definitive, they have attempted to apply the most current information to bring relief .

In a long term outcome study conducted by Scurfield, Kenderdine, & Pollard (1990), improvements were found in several areas of PTSD symptomatology at a 12 to 24 month follow-up. Surveys were sent to 180 graduates from the treatment program which, at that time, included: (1) cohort admissions (meaning groups of 10-13 veterans were admitted every six weeks with two groups in the program at any one time); (2) group treatment as the primary modality including: psychoeducation classes (i.e. stress management, anger control, sleep disturbance, vocational rehabilitation, and relationships), thematic group therapy sessions (premilitary, war-zone, postwar zone, here and now) as well as journal writing and sharing; (3) significant therapeutic milieu emphasis, i.e. some veteran run only meetings, a combined veteran and staff rules infraction committee, and vet-to-vet peer or co-counseling; (4) close, collaborative relationships with community-based resources (i.e. staff working off the hospital station several hours weekly at community sites, as well as a shared staff position with the Tacoma Vet Center); (5) significant presence of war veterans (57%) among the 23 staff; and (6) a later activated biological component, primarily using anti-depressant and nonbenzodiazapine anti-anxiety medications.

The biological component was not systematically and fully implemented until September 1987, which made that feature unavailable to subjects in this study. Aftercare was also made available to all participants and was used by 89% of the respondents to the study in the form of follow-on outpatient treatment of either group or individual therapy. Twenty percent of the respondents were re-hospitalized following discharge. This program primarily dealt with psycho-social rehabilitation on an interpersonal level, as these results were developed without the assistance of pharmacological or intensive depth oriented individual therapy. The program and outcomes seem to correlate with the results being strongest in areas such as social or interpersonal relating, trust and self-esteem, and weakest in areas like intrusive symptomology such as nightmares and flashbacks. Improvement in areas such as self esteem and social skills echoes the findings of Yalom (1985) regarding the power of group work. With the addition of pharmacotherapy, some of these symptoms may be temporarily remitted to allow for a return to biologic homeostasis. However, the lack of intensive affective reliving as accomplished in exposure based treatments or depth oriented psychotherapy would seem to explain the retention of more depth related symptoms such as flashbacks, nightmares and affect regulation problems.

Other limitations of the program are noteworthy. The study was done at the beginning of the program which did not reach its full staffing or implementation until 6 to 8 months later, which clearly could have impacted treatment efficacy. Also the results were recorded across veterans regardless of additional diagnosis such as Axis II or substance abuse co-morbidity. This implies that these treatments were both unhindered by and, yet, ineffective in treating the co-morbid features of the presenting problem. As with other VA inpatient programs, wait lists were long and distinctly unhelpful when these individuals had finally, sometimes after 30 years of symptoms, asked for help.

A second inpatient treatment program that reported somewhat discouraging results after using a panoply of intervention strategies was the VA Medical Center in Coatesville, Pennsylvania. This program, as reported by Hammarberg and Silver (1994), employed interventions from multiple modalities including therapeutic milieu, group therapy, patient education, relaxation, dream work, peer group counseling, and one or two times a week individual therapy which sometimes was expanded to include family, spouses and significant others. Additionally, Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) groups met weekly, biofeedback and other medical interventions were available and, approximately every six weeks, trips to the Vietnam Veterans War memorial were taken for the impact of ceremony and the generation of themes for the group meetings.

The results from this rich therapeutic community were poor. Although there were statistically significant results in post-treatment scores, these results disappeared by the six month follow-up in most cases. No long-term results were seen in any area. All of the assessment measures, which included the Penn Inventory for PTSD (measuring symptomology such as nightmares, flashbacks, etc.) and the Beck Inventories for Anxiety and Depression, reported no significant changes at the one-year follow-up from pre-treatment functioning. The most that could be said for the treatment program at the one-year follow-up was that Veterans self-reports reflected improvements in coping with every day stress, more satisfaction with interpersonal relationships, and positive changes in drinking and drug behavior.

Many questions still remain from the Hammarburg and Silver (1994) report. What was the process used to determine the kind of treatment given to a patient? Did therapists feel they had enough contact with the patient in their modality to do all they could do? Also, what was the quality of the groups? This report was helpful to the treatment center in that it motivated a comprehensive internal review of treatment rationales to address questions surrounding treatment efficacy. Hammerberg and Silver (1994) also presented summaries of other outcome studies at several other VA facilities. A post hoc comparison of the highest and lowest 25% of gains scores ($\underline{n}_1$ & $\underline{n}_2$=15) was done to determine if there was a difference by the kind of individual therapy received. The classificatory results suggested that Direct Therapeutic Exposure (DTE, i.e. flooding) had the greatest effect as 10 of the 15 successes were from the DTE group. However, the authors provide no way of interpreting the strength of the effect from the data provided. Additionally, one doubts that a psychodynamic or analytic therapist would say that he or she could have worked effectively within a 10-12 session, 50-minute constraint. This two year treatment milieu seems optimal for a comparison of well trained analytic therapy and well organized cognitive and behavioral models. The high utilization of aftercare implies the need for a longer term conceptualization of therapy as well.

In the most recent outcome study involving the comparison of active, integrated treatment models, Fontana & Rosenheck, (1997) compared the treatment outcomes and costs of treatment in three different VA inpatient PTSD programs. These models were long-stay, specialized inpatient, short stay specialized evaluation and treatment, and non-specialized general psychiatric. They compared these programs for both treatment outcome and cost of administration. The results indicated that while the short-stay model was statistically superior to both the long-stay specialized inpatient and the general inpatient psychiatric, none of these programs produced clinically significant results that lasted to the one-year follow-up. In other words, a large majority of patients reported improved symptomology at discharge and there were statistical differences in outcome at the one year follow-up that indicated that brief treatment was superior to the others, but these differences were not clinically significant. The patients routinely returned to their chronic level of symptomology within one year of discharge as measured by Chi-Square group differences on all measures. The authors note that "the chronicity of the disorders poses its own hindrances to successful treatment beyond those posed by the disorders themselves" (p. 763).

This study was an improvement over previous ones in that Fontana and Rosenheck (1977) compared relatively successful treatments with large samples, using independent raters, advanced statistics and follow-up data to assess their results. These programs utilize a mix of individual and group therapy and provide a safe, supportive setting for structured treatment experiences. The treatments intensively explore traumatic war zone experiences and encourage peer support, confrontation and open sharing. Another benefit of the short term treatment recommended by this study was that wait lists were typically short and the cost of treatment was significantly less. However, in most cases, the general psychiatric inpatient treatment had no wait list either.

A few limitations were of note. One problem was that the authors did not clearly define the specific kinds of individual or group techniques that were utilized. They only stated that the results had come from the most respected sites in the national VA system. An additional problem for the VA population was that treatment was not available when the disorder was first manifested. This was due, in part, to the chronicity of the situation, in part, to the wait list (in some cases people had to wait many months after they asked treatment) and, in part, to the disorder itself (people did not come into treatment when symptoms were noticed due to lack of trust and other factors). Also, veterans were not randomly assigned to the three types of treatment and they differed from each other in many ways. While statistical methods were used to adjust for these differences, such adjustment did not merit the same confidence as random assignment. One similarity that limits generalizability is the presence of only men. Also, this quasi experimental design, having weaker internal validity, may have stronger external validity given that the reference population consisted predominantly of male veterans and not other kinds of PTSD patients because it more clearly reflects real world field conditions.

Advanced statistical methods were used to analyze the results. One-way analyses of variance (ANOVAs) were performed to compare across the three models of treatment on the characteristics of 52 veterans. The characteristics that differed significantly and related to treatment processes were used as covariates in the analyses comparing treatments to each other. Random regression modeling was used to account for missing data across longitudinal measurements. Structured covariance matrices were also used for repeated measures missing data. Two series of random regression analyses were performed as factorial analysis of variance in which change over time was evaluated across the three models of treatment. The first evaluated change from admission to discharge and the second assessed change from admission to 4, 8, and 12 month follow-up.

This study highlights another limitation in generalizing findings about PTSD treatment to other populations, such as rape or disaster victims. These populations differ significantly from war veterans in terms of chronicity and, hopefully, in the amount of time having passed until intervention was sought and applied. Non-service related PTSD seems to be more likely to get fast treatment, before chronicity is a factor. Additionally, the subjects in this study were all adult male veterans, as with all of the VA studies, which also limits generalizability. What this study seems to indicate most clearly is that more is not necessarily better. For treatments to be effective, they must be focused on specific symptoms covering the range of the presenting problem. They must be administered by therapists who are well trained in the specific model that is selected and applied at a point that is most clinically useful. Finally, progress must be assessed at intermediary stages through standard instruments with qualified supervision to guide the implementation of changes based on the response to treatment.

Treatments of Adolescents (13-19)

The most striking thing about the treatment of PTSD in adolescents is that there are so few controlled treatment studies to date. It was not until the DSM-III-R was published that it was officially recognized that PTSD can occur in children at all (American Psychiatric Association, 1987). Reese (1996), in a doctoral paper on the treatment of college age incest survivors, both male and female, notes that "little to no professional literature has focused on treatment or intervention specifically designed for college age survivors" (p. 17). In fact, in the only integrated theoretical paper that Reese found, Yule & Canterbury (1994) recommend Critical Incident Stress Debriefing (CISD) as an early intervention technique which has been critiqued by McFarlane, (1994) as actually increasing the traumatic impact of the event. Reese also appropriately highlights the unique developmental phase of college students and how that impacts treatment issues and complicates recovery.

Of the studies that have been published, most cited the presence of post traumatic symptoms following exposure to stressors including war, violent crime, and disasters of varying origins with no treatment assessment. The treatment accounts in the literature fall into two main categories for adolescents, Cognitive-behavioral individual treatments (including psychoeducation regarding prevention) and group interventions. These treatments follow broad criteria that define their activities.

Psychotherapy

Cognitive Behavioral

One early example in the literature of Cognitive Behavioral treatment was of children who were in a school minibus crash. They showed improvement on self-report measures at a three month follow-up after two sessions of Critical Incident Stress Debriefing (CISD; Stallard & Law, 1993). Seven pupils (six girls and one boy) and the teacher (who was the driver of the bus) had communicated the presence of symptoms three months after the accident and were seen and treated with two sessions of CISD. This consisted of two three-hour group sessions where thoughts and feelings about the crash were elicited. Pre- and post-measures consisting of the IES, the Birleson Depression Inventory and the Revised Children's Manifest Anxiety Scale (R-CMAS) were utilized to assess responsiveness to treatment.

Analysis of the data indicated that the debriefing sessions had facilitated a reduction of symptoms on all three measures. This use of debriefing avoided McFarlane's critique about rapid recounting of trauma interfering with recovery because the support system was involved first. It also seemed to emphasize a necessary facet of adolescent life which was a return to the safety of the group, meaning that the need to be accepted by peers was emphasized rather than a return to the security of parents or other authority figures. However, the treatment program had several limitations. Non-random assignment, small sample, shorter than average treatment duration and no long term follow-up, which make these results nearly uninterpretable. This does imply that CISD may be a helpful tool when used after re-establishment of social context, providing a format within a group to quickly establish process, but more data is needed.

Yule & Udwin (1991) compared scores of 24 girls who survived and were traumatized by the Jupiter cruise ship disaster, to 126 girls of comparable age from a secondary school. The focus of this study was to determine whether data can systematically be elicited from children who survive a disaster. This study has been interpreted by some as a recommendation for CISD or group therapy as they reported a reduction of scores over time with a treatment regimen in between. However, their results fail to show any positive impact of psychological debriefing with or without group counseling sessions on the reduction of reported symptoms (Stallard & Law, 1993). The comparison of ratings at ten days and five months following completion of treatment revealed that overall there were no significant differences on the IES score. The IES remained high and children's scores on both the depression and anxiety scales also significantly increased over time despite the treatment interventions. While being a well known study validating the use of rating scales, it provides no data for or against the use of any treatment condition. Stallard and Law (1993) changed the assessment methodology of this study and were later able to show that the treatment of CISD was, in fact, effective. Their critique was focused on the measurement of success, not the presence thereof.

Yule & Udwin (1991) had previously used a variant of imaginal flooding on a 16 year old British male who also was traumatized during the sinking of the cruise ship Jupiter. The treatment consisted of the subject being asked to describe the details of the accident and accurately report what he observed, heard, felt, smelled and thought. He went on to listen to an audio recording of his verbal description of the sinking between therapeutic sessions. At follow-up he maintained significant gains on the Revised Child Manifest Anxiety Scale (RCMAS), the Birleson depression inventory and the IES. He was also able to approach and remain in the trauma-reminiscent situations.

Saigh (1987a) used in vitro imaginal flooding to treat a 14-year-old Lebanese boy who had been abducted and tortured during the Lebanese crisis. The boy presented with clinically diagnostic PTSD symptomology six months after the incident, which included trauma recollections, nightmares, reduced ability to concentrate and recall, as well as anger, trauma related avoidance behaviors, and depression. The youth completed pre- and post-tests on the STAI, the Rathus Assertiveness Schedule (RAS), the BDI, a SUD scale and a 12-item Behavioral Avoidance Test (BAT). A multiple baseline design across traumatic scenes was used. Each scene recall was preceded by 10 minutes of relaxation followed by 60 minutes of in vitro flooding. This technique is imaginal flooding with the addition of stimulus response cues to highlight the most disagreeable part of the experience. This proceeded through each scene of memory. Each scene was followed by relaxation exercises.

The boy's level of arousal decreased significantly on all measures after seven flooding sessions. At the four month follow-up, his objective scores reflected almost no anxiety and significant reductions in self-reported depression, anxiety and misconduct. Along with these results, improvements on concentration and short term memory were seen as well, measured by the WISC-R coding and Digit Span tests. This study provides support for the use of flooding with teenagers.

In comparison to the effects of exposure therapy with adults, many parallels were found. Both adults and teenagers improved on symptoms such as anxiety, depression, misconduct, hyper-arousal, memory and concentration, as well as social adjustment. Lack of effect was also seen in both adults and teenagers regarding anger management.

Group

It should be mentioned that most therapeutic approaches to PTSD with adolescents are conducted in a group format. The debriefing and cognitive behavioral approaches mentioned above as well as the integrated models below were applied in that manner. They have been divided because the emphases in treatment were decidedly different. The former focused on cognitive techniques more than group techniques and the latter focused on the cumulative benefit of integrating a variety of techniques, which included group. Little has been said about a purely group approach, possibly because of the known limitations from adult work.

Integrated Models

The most recent and only controlled study found to date which focused on the treatment of PTSD in adolescents was conducted by Goenjian, et al. (1997) in Gumri, Armenia after an earthquake that registered 6.9 on the Richter scale and killed some 25,000 people. The effectiveness of trauma focused and grief focused brief psychotherapy was tested 1.5 years after the event on PTSD symptoms with 64 children from four schools in the immediate area. The children (whose mean age was m = 13.2 years) were divided into two groups, a treatment group (n = 35) receiving brief trauma focused therapy and a control group (n = 29) which received no treatment. There reportedly were no differences between the schools in terms of the extent of damage, socioeconomics, age or school grade level. No students received other mental health treatment and none had a history of substance abuse or use of psychotropic medication. The treatment occurred three years after the earthquake which controlled for time effects and spontaneous remission.

All of the subjects met the criteria for PTSD based on scores from the Child PTSD Reaction Index, an index with reportedly good reliability and validity (Nader, Pynoos, Fairbanks, & Frederick, 1990). Additionally, they were positive for depression on the Depression Self Rating Scale which also has reportedly stable reliability and validity (Asarnow & Carlson, 1985). The treatment addressed multiple levels of trauma symptomatology, both within the subjects and the community. The study also addressed social supports having groups for the parents and teachers, as well as providing for their physiological needs through a much larger relief effort of food, medical aid and community rebuilding. Cognitive and emotional factors were treated through individual and group therapy. These treatments encouraged reconstruction and reprocessing of the emotions surrounding the event, clarifying distortions and misattributions, as well as addressing resultant maladaptations and avoidances, legitimizing the victim's reactions. Additionally, developmental issues were addressed through their identification and encouragement to return to a normal process of growth. The time-frame of intervention was relatively short (3 weeks), yet significant results at follow-up were maintained.

The findings indicate a clearly positive effect of trauma focused and brief, grief focused psychotherapy in reducing PTSD symptomatology. Subjects showed improvement in all three PTSD related categories, specifically the increased tolerance of intrusive symptoms, a reduction in hyperarousal, and a lessening of avoidance behaviors. Additionally, treatment of the subjects' depressive symptoms were somewhat successful in that the symptoms did not increase, whereas the no-treatment group's rate of depression increased significantly over the same time.

These results are the most encouraging to date regarding treatment of traumatic stress reactions within the adolescent population. One could surmise that the treatment was effective and necessary, given the results. Also the generalization of Western treatments to other ethnic groups was a major success of this study. Another major strength was the inclusion of developmental issues as a focus of treatment which are critical for this age group, and have not been addressed anywhere before.

The limitations included the selection of those who received treatment based on proximity to the mental health resources rather than random assignment. Noting the ethical concern of subjects receiving no treatment, the authors commented that the lack of comprehensive treatment was based on the limited number of mental health workers and the ability to travel to the sites. It was not clear how well the treatment applications were standardized. It also was not clear how the clinical effect was measured as no therapist or outside observer ratings were conducted and no therapeutic effect sizes were calculated. Another issue was the short time-frame of treatment. Most treatments for traumatic stress require 7-12 administrations at 90-minutes each for exposure based applications and some require more than that. The interventions used were based on recommendations from the literature but it did not appear that there was attention to the technical quality of their application.

Interpersonal treatments could have been continued through the use of groups and mental health check-ups could have been used to assist in continued improvement. This may indicate why, although there was a significant reduction of symptoms, the children were still symptomatic at the end of treatment. The developmental aspect of this intervention may not have been as well developed as other aspects and could have increased the benefit to the students as well. All this being said, this study is still the strongest attempt at validation of a multifocal treatment program for adolescents with PTSD and it showed encouraging results.

Empirical validation of more treatment combinations is needed within the adolescent population. Trials of imaginal and in vivo exposure have been shown to work with adults but consideration of these forms of intervention needs more data involving this population. Debriefing is presented as helpful and yet more study is needed. Cognitive-behavioral treatments also have shown success but it has not been demonstrated how these can best be integrated with other treatments for adolescent populations. Group therapy is also recommended, however, there is a clear need for protocols defining the content and process goals of these enterprises, even if unstructured. Finally, there is little controlled evidence for the use of pharmacotherapy with this population. Although pharmacological agents are clearly used in the field with traumatized teenagers, the literature is in need of development.

Treatments of Children (12 and under)

Psychotherapy

The study of trauma and its treatment in children is also a recent empirical venture. As recently as eight years ago, one could not find any empirical investigations of the treatment of children with PTSD. Terr (1989) notes that at that point, there were no generally accepted research studies which established one particular treatment as standard. There are numerous nonempirical articles citing successful treatment of PTSD by various methods, such as crisis intervention, cognitive-behavioral, family, group, hypnosis, play therapy, psychodynamic and residential (Terr, 1989). Reese (1996) also cites several treatment models for the childhood incest survivor, which are based on theories of loss, trauma, feminism, and self-development. However, in all of those discussions, few empirical studies are presented as evidence. Additional difficulties include trauma concurrent with rapid developmental changes and under-developed human capacities, which can mask trauma indicators and mimic other childhood disorders such as ADHD (Perry, Pollard, Blakley, Baker, & Vigilante, 1995; Thomas, 1991).

Cognitive Behavioral.

Saigh (1986) showed positive results using in-vitro flooding with a 6-year-old Lebanese boy. This design was similar to the one used with the aforementioned 14 year old. In this study, the Lebanese youth had been subjected to war trauma and was directed to do deep muscle relaxation for 10 minutes, followed by 60 minutes of therapeutic stimulation. He was then instructed to imagine the particular details of the anxiety-evoking scenes. This was measured in a multiple baseline design across traumatic scenes. SUDS ratings were elicited at two minute intervals during the aversive scene presentations. The scores showed clinically significant treatment gains across measures of anxiety and depression, short-term memory and concentration, as well as behavioral outcome measures. These gains were held at follow-up. This treatment effect was amplified by the fact that the subject's symptoms had not remitted for 25 months prior to treatment. This time delay argues against confounding due to spontaneous remission. It should be noted that this study tested a treatment package of relaxation, brief in vitro exposure and in vitro flooding, rather than one technique.

An auditory variation of EMDR showed success in a single case study with a 4-year-old boy reporting PTSD-like symptoms including nightmares, flashbacks, hypervigalence and regressive behaviors (Cocco and Sharpe, 1993).

This child and his family had been victims of armed assault and it had been one year since the onset of symptoms when he presented for treatment. The parents identified six behaviors as problematic. They were nightmares, sleeping in his parent's bed, wetting the bed, asking for reassurances of safety, talking about the incident, and taking the toy gun with him. They were asked to monitor their frequency. An Achenbach Behavioral Rating Scale was also administered, placing the child at the 100th percentile for thought problems, well within the clinical range. While he could hold the image of the armed assault in his mind, he could not do so while tracking the eye movements, so an auditory version of EMDR using alternating clicks from side to side was implemented. The boy was asymptomatic at the 1 month and 6 month follow-up points after using the auditory version as presented in Shapiro's training seminar in 1993. However, at the six month follow-up he was again sleeping with his parents and not using the toilet alone at night. These behaviors were treated with traditional behavior modification techniques with positive results.

While the single case study format (which includes many concerns in addition to those raised by the deviation from the normal treatment protocol) made these results non-definitive, they are still somewhat encouraging. In addition to the remission of most of the symptoms, the two symptoms that recurred, bedwetting and sleeping with his parents, were able to be treated with standard behavioral therapy which gives some indication that the problem was a reinforcement issue rather than a traumatic one. Also problematic was the fact that no objective PTSD measurement scales were used.

Another case report (Pellicer, 1993) on Eye Movement Desensitization (EMD), an early version of EMDR, and children yielded promising results for a 10-year-old girl with behavior problems and nightmares. One treatment session yielded no follow-on nightmares at the end of treatment and at the six month follow-up. However, this treatment also deviated from the original described by Schapiro and, as such, yields only inferential data.

Some of the earlier research on behavioral interventions in the absence of parent training have shown that results are more effective when both parent and patient are included (Casey & Berman, 1985). Following this trend, Deblinger, McLeer, & Henry (1990) constructed a study to examine the effectiveness of a cognitive-behavioral treatment program , which included parental training, designed for sexually abused children suffering from PTSD. The children's program consisted of several cognitive-behavioral methods such as modeling (open discussion of abuse related material), coping skills (expression of emotion and coping skills for anxiety), gradual exposure (consisting of imagery, doll play, drawing, reading, letter writing, poetry, singing, etc.), as well as education and prevention skills training (e.g. clear communication, body ownership, touching continuum, the right to say no, getting way, and telling until someone hears and secrets). The treatment was conducted in a graduated, 12 session, short term format. The parental sessions included skills training consisting of education, coping, communication, modeling, exposure, prevention training and behavioral management skills. The post-treatment scores were compared to the second of two-baseline measures with paired t-tests, yielding significant improvements across PTSD subcategories including re-experiencing phenomena, avoidance behavior, and arousal symptoms. Additionally, children's self-report scores indicated significant improvements in depression, state anxiety, trait anxiety, as well as internalizing and externalizing behaviors. These positive results parallel the trends seen in adults and adolescents, namely that a combination of exposure, cognitive-behavioral, and group therapy for victims and their social support groups seem to yield the most consistently positive results.

This study was also limited in a number of ways. First, the authors note that, while no participant continued to meet the full criteria for PTSD, neither were any completely free from the symptoms. Depression was reduced but still present at post treatment. No information on effect size was provided. Additionally, the study lacked observational data (clinical ratings), had no control group and had only a small homogeneous sample. Finally, it was unclear whether blind interviewers were utilized to assess the children's progress. This study did seem to indicate that a combination of parent and child interventions, cognitive behavioral ones in this case, may impact a fairly large range of PTSD symptomology in addition to others in children.

One outcome study of therapy with sexually abused children utilized a repeated measures design to assess the impact of a combination of treatments including abuse-focused individual treatment, family therapy, and group therapy (Lanktree & Briere, 1995). Whenever possible, parents of the child victims received collateral individual, conjoint, or group therapy as well. All therapists (there were 12 over a 4-year period) were reportedly trained extensively on sexual abuse effects and treatment applications, and they maintained ongoing supervision with the first author.

A total of 105 sexually abused children, ages ranging from 8 to 15 years, began the study with 71 remaining three months or longer. The symptom differences were measured with the Trauma Symptom Checklist for Children (TSCC), the Child Depression Inventory (CDI; Kovaks, 1992) and the Child Behavior Checklist (CBCL), each administered at three month intervals.

Multiple regression analyses were performed which indicated that time spent in treatment was more predictive than any other measure of time (i.e., more predictive than time from the end of the abuse to the beginning or end of treatment). In other words, the regression analysis indicated that, although more time had passed between the average subject's last sexual abuse experience and the onset of his or her treatment, the time he or she spent in treatment was considerably more predictive of post-treatment symptomatology. In contrast, there were no decreases in symptom scores as a function of time before treatment, as would have occurred if subjects' symptomatology decreased merely as a function of time. The interaction effects of time from abuse and time in treatment were also tested and indicated that for 5 of 6 scales, shorter or longer time from abuse to the onset of treatment did not moderate the effects of time in treatment. The Dissociation scale did have such an interaction. This means that higher TSCC dissociation scale scores and higher CDI scores were found for those who had a relatively longer period of time from abuse to start of treatment and also for those who had a relatively short time in treatment.

Problems within this study include the high turnover rate of subjects, potential demand effects of the first author presiding over the treatments and lack of a validated self-report behavior measure for youths under age eleven. Additionally, the cross interval comparison measures for the CBCL Parent and Youth forms involve relatively small sample sizes, yielding somewhat limited statistical power. Not all subjects were given TSCCs or CDIs at each interval because of systemic problems involving the conduct of studies in an active outpatient clinic. Issues included parental noncompliance, patient no-shows and therapist turnover. This analysis did not include any controls to compare different individual treatments or combinations of treatments with each other which the authors also noted and suggested more frequent assessments to better determine specific treatment's effects. As such, these results were limited to a global effect or no-effect comparison of the treatment experience. Additionally, many confounds are mentioned and many more likely exist which threaten both internal and external validity, leaving only time in or out of treatment as clear categories.

The results indicated a decrease in all symptoms at the three month interval except the Sexual Concerns scale and, of these, all but the dissociation scale declined for one or more periods thereafter. At six months, those remaining in therapy continued to decrease on the CDI and on the Anxiety, Depression, PTSD, and Sexual Concerns scales of the TSCC. At nine months, Anxiety and PTSD continued to decrease and at one year, those still in treatment showed decrements in Anxiety, Depression, and PTSD. The results seem to indicate a correlation between a longer time in treatment and a more positive therapeutic outcome (i.e., lower symptom scores held to follow-up). It appears from this report that not only did symptoms go down during treatment but that symptoms left without treatment seemed to increase. This effect was seen in the correlation of higher baseline symptom scores with subjects who had longer time between abuse and treatment.

It was also considered that a longer time between end of abuse and start of treatment might be the result of confounding variables such as harsher abuse or worse family dynamics. This concern was also tested in the multiple regression analysis and few symptom differences were found relative to those who received treatment more immediately. This study can neither commend any particular part of the treatment package as more helpful than another, nor can it commend this particular treatment package over any other, because there were no controls. What it does seem to say is that there is a positive impact for patients who retain symptoms when they stay in treatment. It also implies that at least for this combination of treatments, which was extensive, the majority of results did not appear until at least nine-months into treatment and positive clinical effect was still occurring at the one year point and possibly beyond. Another implication is the correlation between shorter times between the incident and treatment and degree of recovery. Children in this study who had longer times between the trauma and treatment generally were more angry, depressed and dissociative.

Another current comparative study, working to overcome earlier methodological flaws, evaluated the efficacy of two short term individual therapy interventions for sexually abused girls and their nonoffending caretakers (Celano, Hazzard, Webb, & McCall 1996). This study treated thirty-two girls, ages 8 to 13, and their caretakers, primarily from low income, African American families. The authors randomly assigned their subjects either to a theoretically based, structured experimental treatment program or to a relatively unstructured comparison intervention. Both interventions consisted of eight 1-hour sessions in each of which the time was typically divided between the child and caretaker.

The core of the treatment involved eight sessions, two of which addressed each of the variables in Finkelhor's four-factor model of sexual abuse treatment (Finkelhor & Brown, 1985). The Recovering from Abuse Program (RAP) experimental group was conducted using a 114-page sexual abuse treatment manual with weekly clinical supervision. This consisted of an individual, cognitive-behavioral therapy program where both the child and parent were treated. Each child was taken through a series of procedures geared to help her identify and reduce feelings of self-blame and betrayal, to decrease abuse-reactive sexual behaviors, to increase open communication about age-appropriate sexual behaviors, and finally to deal with issues of powerlessness and concomitant anxiety. Parental cognitive behavioral interventions followed a parallel course treating the care-giver as both client of and partner with the therapist, dealing with both personal issues, such as depression and anger, as well as child victim issues such as blame, stigmatization, the caretaker's sense of betrayal, the child's expression of feeling like a victim and powerlessness.

Finally, instruction was given on reducing further risk of abuse. The Treatment as Usual (TAU) group did not follow this manual but did receive supervision competent in sexual abuse therapy.

Pre- and post-measures were completed for both the children and the nonoffending parental caretaker who brought them into treatment. The measures for the children included the Child Behavior Checklist (CBCL) completed by the parent, the Children's Impact of Traumatic Events Scales-Revised (CITES-R) completed by the child, and the Children's Global Assessment Scale (CGAS) to assess overall psychosocial functioning which was filled out by a child psychiatrist following caretaker and child interviews. The CBCL is a well-established instrument with strong reliability and validity from which the PTSD and the Internalizing Externalizing Subscales were used. The CITES-R is a 77-item self-report measure, which also assesses children's PTSD symptoms and trauma related beliefs. These scales possess adequate reliability and validity.

The adult caretakers were assessed with a structured interview to obtain demographic data, the child's history of abuse, current psychosocial functioning, the caretaker's history of child sexual abuse (if any), past psychiatric history for both, and perceptions of disruption to the family as a result of the abuse disclosure. Two scales were used. The first scale was the Parental Reaction to Incest Disclosure Scale (PRIDS). It is an interview-based, clinician rating of the non-offending parent's support of the victimized child in three areas: Emotional Support, Belief of the Child, and Actions Toward Perpetrator. The second was the Parental Attribution Scale (PAS). The PAS is a 21-item Likert scale developed by the authors to assess the caretaker's attributions of responsibility of abuse to the child, to herself, and to the perpetrator. The latter scale is described in Celano et al. (1992).

The authors utilized repeated measures analysis of variance to compare the efficacy of the Recovery from Assault Program group (RAP) to the Treatment As Usual group (TAU). Children in both treatment conditions improved over time, showing a decrease in PTSD subscale raw scores on the CBCL. Scores from the Children's Global Assessment Scale (CGAS) indicated significant improvement in social adjustment from pre- to post-testing. Additionally, CITES-R data showed that children in both conditions decreased significantly in self-reported PTSD symptomology from pre- to post-treatment. There were no changes in sex-related beliefs, perhaps due to these issues requiring more time to be effected in treatment (Lanktree & Briere, 1992). The RAP treatment was also more successful in eliciting caretaker support of the child and decreasing caretaker self-blame. Neither treatment was able to reduce the levels of caretaker blame for the child or increase perpetrator blame.

This was a well formulated study encompassing a solid theoretical base, random assignment to experimental groups, adequate sample size, and the use of standardized measures with independent raters to evaluate treatment. It used repeated measures analysis of variance to assess main and interaction effects for the two groups, with significant results in each. Both the treatment program and the experimental design were effective in providing ethically helpful treatment in a way that yielded productive scientific results. Six month follow-up data is in progress. This study is very helpful in demonstrating the effectiveness of individual therapy as a means of reducing PTSD symptomology in general and, in particular, the variables identified in Finkelhor's model. It also presents an application of therapy designed to affect the social context. However, the design did not permit assessment of differential effects with a group that did not receive caretaker treatment or, due to ethical concerns, a no-treatment control group to test for time effects. Additionally, it did not report specific effect sizes, only significance of F-values. It did, however, include self and observer report data that seemed to indicate that improvement had occurred. The external validity was limited also by the homogenous cultural background. Nearly all participants were African American. The TAU group's description was not clear enough to commend it as a specific form of therapy for PTSD without further elaboration, except to say that individual therapy concurrent with care-taker therapy can produce positive results.

Finally one could glean from this study that RAP individual and caretaker therapy together can have an initial impact on PTSD symptomology (long-term results are yet to be assessed). Children in this study met the criteria for PTSD to enter based on positive CITES-R subscales of intrusive thoughts, avoidance, and hyper-arousal. The participants also demonstrated mild but significant impairment in social functioning as measured by the global assessment scale. The subjects showed positive results without medication being applied in the first 26 months after the abuse. Further data could be useful to control for time and compare this same treatment between groups immediately, one month and then several months after the incident as well.

The studies reviewed above indicate the necessity of treating not only the child but the caretaker as well, when significant trauma occurs. They also imply that a variety of short term methods can be effective in ameliorating PTSD and other symptomology.

Group

While many studies report the success of group therapy in the treatment responses to traumatic events, few studies provide evidence of their efficacy. O'Donohue & Elliott (1992) did an outcome study of sexual abuse treatments for children and found only 11 studies on the topic. Four of those studies involved group treatments, and of the four, two held some empirical validity. The first of those studies was done by Burke (1988) who provided group therapy for 25 girls who were sexual abuse victims between the ages of 8 and 13. The study consisted of a pre- and post-test, control group, experimental design that involved once-a-week treatment for six weeks. This short term treatment included cognitive behavioral therapy in a group format including education, progressive muscle relaxation, positive reinforcement contingencies focused on pleasurable events, and role-play strategies for future prevention. This study yielded statistically significant reductions in depression and anxiety symptoms in a solid experimental design. The author also provided a detailed description of the treatment in the appendix for replication purposes. The study did not show reductions in many PTSD symptom clusters including intrusive symptomology, avoidance and hyperarousal as well as generalized fear. Unfortunately, questionnaires that measured a broad enough range of symptoms to be considered a comprehensive PTSD study were not used and the follow-up period was only six weeks in length.

Hoier, Inderbitzen-Pisaruk, and Shawchuck (1988) also used a short term group model to apply cognitive-behavioral intervention strategies with 15 girls ages 5 to 15. Treatment consisted of behavioral rehearsal, reframing, coaching, and modeling to teach skills and correct inappropriate cognitions. The authors reported statistically significant reductions in depressive and anxiety symptoms in a cost effective treatment presentation. This study, however, did not assess a broad enough range of symptoms to be considered a PTSD treatment per se, and the authors did not report measures of interpersonal growth most common to group treatment. They did report several difficulties including small sample, no control group, selection bias (the subjects were selected because they were the most difficult clients for them to work with), and no follow-up assessment. The study also did not include a prevention component to assist in coping with future relationships.

Yule and Williams (1990) provided a low structure group for the children and parents who survived the "Herald of Free Enterprise" sinking. Gillis (1993) provided group therapy for children following a school sniper attack. Both claimed positive effects without empirical validation. Two additional studies examined the impact of short-term group therapy for sexually abused children (Friedrich, Luecke, Bielke, & Place, 1992; Heibert-Murphy, deLuca, & Runtz, 1992). The former involved 33 boys, aged 4 to 16 years, whereas the latter included five girls, aged 7 to 9 years. Both studies reported decreased symptoms and improved behavior after treatment. Yule and Williams (1990) cite a critique of these last two studies by Finkelhor and Berliner for the absence of an equal control group, but this was not possible due to ethical concerns surrounding withholding treatment from needy subjects. This dilemma does weaken the results by leaving the possibility of maturation effect as noted by Lanktree & Briere (1995). While these limited results seem to imply that group therapy is helpful to PTSD victims, they do not give a clear indication of exactly what it does, which symptoms it affects or why it affects them.

Pharmacological Interventions

One study presenting a pharmacological intervention with children (Famularo, Kinscherff, & Fenton, 1988) described positive results for propranolol in children with acute PTSD. This drug, given at a dose of 2.5-mg per program, reduced symptoms of hyper-arousal and hyper-vigilance (Davidson, 1992).

Additionally, Harmon and Riggs (1996) presented an open clinical trial with seven preschool children ages 3 to 6 years who had been referred to a day hospital for treatment of PTSD symptoms. The subjects for this study were selected for medication treatment at such a young age only after their PTSD symptoms of hyper-arousal, impulsivity and aggression remained severe and had not abated after a course of individual, family and structural/behavioral treatment. The medication (clonadine) was initially administered orally in the morning and at bedtime. It was later changed to once before bedtime and then to a patch with timed delivery as a way of improving compliance. The target symptoms for which the treatment was directed were aggression, impulsivity, emotional outbursts, mood lability, hyper-arousal, hyper-vigilance, generalized anxiety, oppositionality, insomnia and nightmares. The raters, both staff and parents, were questioned on a weekly basis and reported significant improvement on all measures after the clonadine had been started.

This trial was limited by a number of features, including no standardized measures to diagnose PTSD, no standard assessment batteries in the pre- and post-assessment phases, and the lack of double blind controls, thus being subject to demand effects. There were also no placebo or alternate medications utilized, significantly limiting the validity. It was also not stated whether the medication was to be temporary or permanent. Given these limitations, however, it should also be noted that this approach was taken only after other psychotherapeutic interventions were tried and found unsuccessful as determined by the raters.

There are other medications which show promise for rapid reductions of PTSD symptomology in children. Looff, Grimley, Kuller, Martin, & Shonfield (1995), in a letter to the editor of the Journal of the American Academy of Child and Adolescent Psychiatry, reported successful symptom amelioration in 28 child patients with Carbamazepine. The subjects included 12 girls and 16 boys whose ages ranged from 8 to 17 years old. These children were reportedly positive for PTSD symptomology after having been repeatedly sexually abused since childhood, usually by male family members. While no assessment instruments were cited, general explanatory symptoms were provided with the diagnosis. Additional comorbid symptoms of ADHD, depressive disorder, oppositional defiance, or polysubstance abuse were reported in over half of the subjects. According to self-report, all participants were asymptomatic except six patients who retained intermittent abuse-related nightmares as soon as the serum level reached 10.0 to 11.5 mg/ml. They were discharged to community based follow-up care with a continuing prescription at that dosage. These results are inconclusive but indicate the potential for temporary relief of a broad band of symptoms. They also carry the concern of being on medication indefinitely.

Community Supportive Resources

The Celano et al. (1996) study included community supportive aspects in that the symptomology of both caretakers and the sexually abused children were measured and treated. This could be considered an integration of, at least, individual treatment models to reduce PTSD and other symptomology. This is because the improved adjustment of both child and caretaker is theoretically recognized as both useful and practically applied.

Integrated Models

One integrative day treatment model with a therapeutic milieu consisting of a 4-hour per day treatment period with highly structured therapeutic and educational activities is described by Oates, Schweitzer, & Kempe (1995). This program includes twice-weekly individual psychotherapy, twice-monthly family/parental therapy, pediatric screening and management, and regular case management. Pharmacotherapy is available to selected patients. Most participants remain for 2 years. The Kempe Early Education Project Serving

Abused Families (KEEPSAFE) is designed to provide early education and therapy for abused children so they can improve developmentally, socially, and emotionally with the aim that the children would be suitable to enter the public education system. This program includes both clinical and home visits focusing on improvement of the quality of interactions between adult and child. The majority of the children made developmental gains at a faster rate than would be normally expected for abused children.

Subjects in this study were twenty-four children (13 females, 11 males) were enrolled in the KEEPSAFE program over a 3-year period. All had been sexually and/or physically abused prior to enrollment and were judged to be unsuitable to enter public school because of developmental delays and abnormal behaviors. The development of all the children was assessed at entry and at 12 months to measure the degree and rate of progress. This was done with the McCarthy Scales of Children's Ability which is an adequate tool with good reliability that measures verbal, perceptual, quantitative, memory, and motor skills. The scale provides a General Cognitive Index (GCI) which correlates well with standard IQ measures. The Peabody Picture Vocabulary Test (PPVT) was also administered to assess receptive language as most abused children apparently have difficulties with expressive language skills. This would allow a more sensitive measure of learning potential.

Comparisons over time for these two tests were made using the Proportional Change Index (PCI), which is a numerical statement of the relationship between the child's rate of development compared with the gain in chronological age. The reported average gains were 16 months developmental progress over a twelve month period. The proportional change index, a more accurate measure of the rate of change, had an overall mean of 1.92 and a mean of 2.13 for the 18 children who improved, a score of 1.00 being the expected rate of change for this index. Three of the children manifested enough behavioral and emotional disturbance to impede testing. All of the children were tested with the PPVT at completion of the program. Five of the children progressed at a slower rate than expected, having a proportional change index of less than one with one. Of the other 18 children who progressed, the average index score was 2.3. While the average change for the group that improved was significant, the average change for all the subjects on the PPVT was not, due to the low scores of the 5 nonprogressing children.

The results from this project indicated a developmental improvement in a majority of the participants. The fact that a large percentage were able to be placed in the public school system was an indication of positive impact. However, what brought about this positive change and the degree of change was unclear. The study had no control group, nonrandom assignment and high score variation among subjects. No pretest measures were possible to understand as to whether the slowed developmental progress was due to the abuse, to genetic factors or to other unknown issues. This differentiation would have been helpful in determining whether this was a treatment for traumatic stress or a more generic methodology to ameliorate developmental delays. No direct measures of the relationship variables were taken to measure improvement in caretaker child interactions. Also, it was not clear whether the team that placed the children in public school were doing blind assessments of suitability for mainstreaming or if they were associated with the program. It was not clear exactly which part of the program was helpful or whether the program as a whole caused the measured changes. While the focus was on overcoming trauma and developmental delays, no specific measures to assess change in traumatic stress symptomology were used. It is apparent that this program was helpful to the children and, most likely, helpful to the caretakers, but why and how it was helpful was left to inference.

Co-Morbidity

Co-Morbidity is a critical issue across age groups in both the selection for and success of treatments attempting to mitigate or remit traumatic stress symptomology. There is a growing base of information which implies that the basis of chronic PTSD lies in its association with other existing symptomology. For instance, 98% of Vietnam theater veterans with PTSD had a history of some other disorder (Kulka, Schlenger, & Fairbank, 1990). Studies of Cambodian refugees indicate that PTSD clusters in families, suggesting that genetic or contextual factors are at the root of more serious forms of the disorder (Sack, Clarke, and Seeley, 1995).

Other DSM-IV diagnoses that are given concurrently with the diagnosis of PTSD can lead to a number of different effects for the individuals concerned. Additional diagnoses are typically grounds for exclusion from PTSD treatment programs (Hammarberg, 1994), noted but not directly dealt with (Scurfield, 1990) or missed entirely, being attributed solely to the traumatic reaction. Broad exclusion of patients due to additional symptomatology may exist, in part, as a result of halo effect. A survey of 18 clinicians, recognized nationally for their use of exposure therapy with PTSD, found general agreement that patients with certain characteristics were not appropriate for exposure therapy (Litz, Blake, Gerardi, & Keane, 1990). These characteristics included comorbid issues such as major thought disorders, personality disorders, current drug or alcohol abuse, cognitive deficits, a history of treatment noncompliance, inability to image, unresolved life crises and poor physical health. Any one of these conditions is enough to exclude someone from exposure treatment and the exclusion of these individuals indicates that the PTSD symptomology will most likely continue. It may be that these rules for exclusion have generalized to other forms of treatment as well.

Additional serious pathology, at best, complicates treatment outcomes and, at worst, blocks therapeutic gains. The inpatient program at the Coatesville VA Medical Center (Hammarberg, 1994), removed these individuals from the PTSD treatment program and no mention is made of what happened to them. Typically for inpatient facilities, both thought disorders and alcohol abuse have other primary programs that can be utilized such as pharmacological intervention and detoxification respectively. Once completed, these individuals could potentially return to treatment but that decision is not automatic. Lyons & Keane (1989) note such a process with substance dependent individuals while psychotic and severely brain damaged individuals are referred elsewhere for treatment. Individuals with personality disorder and PTSD typically receive treatment for the trauma related symptoms and not for their characterologic disorders. This is also a problem because character disorders imply a chronic history of trauma and cause them to be more susceptible to the most severe PTSD symptoms.

On the basis of chart reviews and structured interviews, Boudewyns, Albrecht, Talbert, & Hyer (1991) reported high frequencies of additional psychiatric disorders in PTSD patients. In one study the rates were as follows: Schizophrenia, up to 35%; major depression, 25-65%; and alcohol and drug dependence, 11-61%. The authors then conducted a prospective study which assessed the relationship between comorbidity and long-term (1 year) treatment outcomes. One hundred male combat Veterans were recruited after consecutive admissions to a special inpatient PTSD treatment program at the Augusta, GA VAMC. All met the diagnostic criteria for PTSD and at least one additional Axis

I diagnosis. This diagnosis was established using the Diagnostic Interview Schedule (DIS), a clinical screening interview with reportedly good reliability and validity. Of the 102 subjects, 65 (63.7%) completed the program. For ease of comparison, patients were broken into four groups: major depression recurrent (n = 34), affective disorder with psychotic features (n = 11), schizophrenia (n = 28), and other (n = 26).

Results after chi square analysis revealed a non-significant trend toward association between diagnosis and program completion. Patients with a diagnosis of schizophrenia or affective disorder with psychotic features were less likely to complete the program and there was also a non-significant trend for recent problems with alcohol to be related to unsuccessful program completion. Boudewyns et al. (1991) concluded that concurrent diagnosis of psychosis and alcohol or drug dependence in the year preceding admission should be considered an indicator of poor treatment outcome due to high treatment drop-out rates. While it is apparent that patients could not get better if they left treatment early, these results are primarily based on non-significant trends with no effect sizes reported. Additionally, as has been previously shown, VA treatment programs, in general, have no better long term results with either group (Hammarberg & Silver, 1994).

An interesting issue arises regarding treatment effects and co-morbid issues. The long-term programs that Fontana and Rosenheck (1997) assessed reflected the problematic assumption that individuals with alcohol dependency, characterologic issues, and psychosis will not benefit from treatment and thus were not included or were wait-listed until they could demonstrate "psychological stability" . However, the study incorporated two programs that did include these individuals in their selection criteria. The results revealed the potential fallacy of the exclusion assumption because the exclusion of these individuals did not enhance treatment gains of the long-term intensive program over the less restrictive short term PTSD unit and the general psychiatry ward. In fact, individuals in the less restrictive programs with these co-morbid issues attached were statistically more improved at follow-up. While this study did not demonstrate large clinical value of treatment for any of these programs in terms of symptom remission, it did demonstrate that co-morbid issues may not be as great a detractor as previously thought.

Several studies, (Looff, et al., Marmar, et al. 1993, 1995; 1995; Goenjian, et al., 1995) highlight the presence and influence of multiple symptoms in addition to the primary focus of PTSD. Whether for overwhelming one-time horrific events or for chronic repetitive trauma, additional comorbid symptoms are routinely noted and their presence necessitates treatment. Marmar et al. (1993; 1995) theorize five distinct PTSD syndromes, two of which require co-morbid symptoms to make the diagnosis. They recommend specific treatment concurrently for both the PTSD and additional symptomology (see also Freidman, 1996). Co-morbidity with this syndrome is common and expected in the more chronic presentations and can no longer be an excluding factor for treatment.

Other studies focusing on comorbid symptomology as well as PTSD recommend the use of sertraline, a seratonin selective reuptake inhibitor (SSRI). Brady, Sonne & Roberts (1995) performed a preliminary trial using 9 subjects with comorbid PTSD and alcohol dependence in a 12-week open trial with sertaline. Subjects were recruited from a substance abuse treatment program at the Medical University of South Carolina. Selected individuals were being treated for substance abuse and were found symptomatic for PTSD using the National Women's Study Module screening for PTSD. Symptoms were monitored by the IES and the Hamilton Rating Scale for Depression (HAM-D).

Alcohol consumption was monitored by a self-report instrument (Time-Line Follow-Back). The sertraline was started at 50 mg/day and was increased to a maximum rate of 200 mg/day until symptom relief was achieved or side effects prohibited further dosage.

There were significant decreases in all three PTSD symptom clusters measured by the overall PTSD symptom scores ($p \leq .001$) and in HAM-D scores ($p \leq .001$) during the follow-up period of up to 12 weeks. The days of abstinence increased and the average number of drinks decreased with four subjects claiming total abstinence during the follow-up period. Some patients received additional medications for other unstated reasons. A repeated measures ANOVA was used to assess symptom change over time.

No validity or reliability information was provided for the screening module, HAM-D or the Time-Line Follow-Back. Other limitations of this study included small sample size ($N = 9$), large (33%) dropout rate from baseline to the 12 week point, lack of double blind or placebo controls, non-random assignment and a very short follow-up window (12 weeks). Noting these limitations, this study does provide preliminary data suggesting that an SSRI may be useful in treating PTSD and alcohol dependency close to the onset of the PTSD symptomology.

Miscellaneous Issues

In the quest for generalization one must always keep in mind that there are some idiosyncrasies in the populations under study and those features pose unique problems that must be addressed. Most war veterans have not been and will not be rape victims. Most rape victims will never go to war and see horrific harm done repeatedly to people to whom they are close. These two populations are dramatically different in a number of ways.

Prevention programs are crucial for the safety of women and children to learn how to protect themselves from rape, abuse and other forms of trauma. There are indications that programs can benefit children for a number of reasons. First some studies suggest that sexually abused children are prone to be revictimized or to become rape victims (e.g., Fromuth, 1983). Second, skills acquired in this context can have a number of secondary gains like moderating fear and increasing self-esteem. Third, some studies also indicate that convicted perpetrators often report sexual victimization in their own childhood (O'Donohue & Elliott, 1992). This thinking has been transferred to other venues such as women's groups for rape prevention and could also be incorporated into training plans for any group that is likely to face such trauma such as the military, peace corps, missionaries and the like.

Conclusions

There is both theoretical and empirical evidence that commends a multidimensional understanding of both the nature and treatment of PTSD. The approach to treatment may no longer simply deal with one symptom of the disorder but must affect the whole person including his or her social context, comorbid issues, and life cycle. Treatment must also be applied in the correct time frame to make an impact.

A return to the DSM-IV diagnosis of PTSD provides rough categories within which to organize our treatments. Re-experiencing the event (Criteria B), avoidance of stimuli (Criteria C), increased arousal (Criteria D), chronicity (Criteria E), and social or occupational distress or impairment (Criteria F) must all be dealt with in a complete treatment of PTSD. In the past, treatments have been considered successful if they remitted one symptom, leaving individuals, in some cases, still fully meeting the criteria for the disorder. In other cases, lengthy and costly treatments have been applied with no appreciable change. All symptomology is important and the interaction effects of symptoms must be considered and dealt with to be considered a credible and clinically significant intervention. In addition to symptomology, the time phased application of treatments has also been shown to be necessary.

There are numerous screening and assessment instruments with known reliability and validity that can be used in detecting PTSD and concurrent symptoms. There are also appropriate items to include within a structured clinical interview and medical examination to assess general psychiatric symptoms, personality traits and psychosocial functioning issues. Once the entire range of presentation is known, treatments must be applied to each level of the illness. It appears that this should be done in a phased approach, as near the event as possible with many interventions being applied simultaneously.

The most compelling data regarding remission of PTSD symptoms across age-groups recommends a combination of cognitive behavioral, group, and social support treatments. The studies with acceptable methodologies including sound designs, significant results, and follow-up assessments of at least one year predominantly reported successes with multiple techniques.

Prolonged exposure was successful with adults at follow-up when in-vivo techniques were used. These in vivo exposure techniques could follow imaginal ones, but imaginal alone did not provide strong results. These techniques reduced the three main PTSD symptom clusters of intrusive reexperiencing, avoidance and increased arousal when not countered by other applications such as concurrent relaxation exercises. Exposure by itself did not show complete remission of these symptoms. When exposure was used in concert with cognitive techniques such as education, reconstruction, modeling and stress management, they caused remission of the three key symptom clusters measured up to the 1 year point. The cognitive modalities could also be applied in a group format to access more patients, but this did not alleviate the E cluster symptoms, social or occupational concerns. A successful combination of techniques for social and occupational concerns included group therapy with an interpersonal focus, family therapy focused on the supportive other individually and with the patient, as well as assistance in accessing community resources. When social concerns were treated, patients were able to be considered no longer clinically afflicted with PTSD.

Studies demonstrating these results across age groups included Resick and Schnicke's cognitive processing therapy with limited exposure in a group format for rape victims (1992), Deblinger's use of Cognitive Behavioral strategies in groups with children (1990), and Celano's child abuse and nonabusing caretaker groups (1996). All of these studies showed positive results in all three PTSD symptom categories as well as with anxiety and depression. These programs were done on an outpatient basis, reducing both costs and further disruptions to the life of the patient and family. These treatments could also be applied as modules to an inpatient treatment program when the focus is on more intensive stabilization needs.

It is of note that the populations experiencing these measurable successes were some non-combat trauma male victims, female rape victims and children, not adult male combat veterans. This could mean several things. Combat PTSD is a chronic phenomena which, by nature, makes these PTSD symptoms much more difficult to treat. There are also significantly more comorbid symptoms within this group. The data on successful treatments with men is very small but there is some. It seems more likely that it is the chronicity and comorbidity issues rather than gender that creates this effect.

It is crucial that programs treating PTSD with comorbid disorders be developed. Additional applications addressing drug and alcohol abuse, chronic mood disorders, psychotic reactions and personality disorders must be put in place to coincide with the treatment of PTSD because they are commonly found together. These issues are major factors regarding chronicity, both affecting and being affected by the time from event to treatment. Treatments for these commonly concurrent disorders are known and in place in many facilities, but have yet to be applied along with PTSD treatment. This probably is best accomplished in some kind of inpatient milieu with the therapies following specific treatment protocols. The need for clear structure in these treatment programs is crucial. Systemic concepts such as schedules, protocols applying proven interventions and organized aftercare follow-up are crucial for success.

The phased application of treatment is still a theoretical issue without much data on which to rely. There are a few empirically based concepts that can be applied and some others that are, at this point, only intuitive. It is known that the sooner treatment is begun, the better the chances of success. There is no data that suggests that waiting to get help is useful. However, some interventions are better at the beginning. Following van der Kolk's model, crisis intervention and stabilization is appropriate for victims of a recent traumatic event. This includes removal from the trauma scene, rejoining with whatever supportive social context is available, and actively reinstating a normal life routine. Short term use of medications is helpful here to return to the physiologic baseline, meaning assisting restful sleep and reducing arousal. Immediate systematic reprocessing of the event before social support is established and stabilization is achieved as in CISD has been shown to be problematic.

Once stabilized, more detailed assessment must be done to determine the extent of the symptomology. If only PTSD symptoms are of concern, then the combination of treatments recommended above can be applied. If there are co-morbid symptoms, then a decision is made to determine if outpatient or inpatient treatment is needed. Certain comorbid presentations are amenable to outpatient work. Most of the mild axis I and even some axis II disorders could be handled outpatient along with the PTSD, possibly by increasing the frequency of treatment sessions. However, if more serious concurrent disorders or more chronic premorbid issues exist, then inpatient applications are indicated. Also, if the time from the incident is longer, possibly from six months to many years, then coordinated inpatient treatment is the likely necessity. Here again, medication should be considered as a beginning or middle phase treatment to bring individuals to a state that is amenable to therapy. Once the patient has begun to stabilize and their symptoms have begun to remit, medications should be titrated out, except in the most serious illnesses. The active phase of treatment should only be considered closed when all PTSD symptoms are remitted and co-morbid issues are at least being managed. From here, outpatient aftercare and routine follow-up are necessary to assist in the return to normal social and occupational functioning and monitor for relapse.

Future studies must evaluate combined therapeutic milieus which employ treatments tailored to specific PTSD symptom clusters as well as co-morbid presentations. They must assess clearly delineated treatments and compare the various time-frames in which they could be applied. This must be done at more frequent intervals to determine what treatment is successful, with what symptom, and at what phase. Comparisons of new treatments, such as EMDR, and unvalidated treatments, such as two-year psychodynamic or psychoanalytic individual therapy should also be included. With the present state of knowledge in both treatment and statistical assessment, the field must apply what is already known to progress.

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